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DEPARTMENT OF TRANSPORTATION

COAST GUARD

Aids to Navigation Bulletin

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VOL. 10, NO. 2

TD 5.3/2:

Statement of Purpose

Aids to Navigation systems of the United States and its territories are established, operated, and maintained by the Coast Guard to assist the mariner in locating his position, determining a safe course from that position, and to warn him of nearby dangers and obstructions.

This is done for the benefit of commercial vessels, recreational boaters, and to support the operations of naval vessels. We do this because Title 14 of the U.S. Code makes this a responsibility of the Coast Guard.

To achieve these goals, the Aids to Navigation Bulletin is published to support the individuals and units involved in providing a reliable aid system to the mariner. The Bulletin seeks to meet the following objectives:

1. To provide a means of circulating job-skill information among the professional aids to navigation technicians.
2. To act as a channel for information to flow amidst the units, district office staffs and headquarters staffs.
3. To publish articles about people, units, or events which may be of general interest.

To satisfy these objectives, it is necessary for all who read the Bulletin to take an active part in determining its content. No approval from any higher authority is necessary to ask a question about aids to navigation, or to submit an article or an idea for an article. These may be submitted directly to headquarters (G-NSR/14) or (G-EOE/61) by using the mailsheets included in each edition of the Bulletin or by writing to:

Editor, Aids to Navigation Bulletin
U.S. Coast Guard Headquarters, G-NSR
Washington, D. C. 20593

The articles contained herein are non-directive and non-record material. They are published for informational purposes only.

As per SDL 111:

A: mnopqrs (3), acdefhijkltuv (2)
B: g (20), c (10), befhjnqs (2), o (5)
C: ALL (2), except dnw (3)
D: ALL (2)
E: ALL (2)
F: NONE
H: abcdef (1)

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Editor's Corner

e new Office of Navigation has arrived! r those of you not aware, the new fice came into being 1 May 1980 with DM BAUMAN as Chief. With the creation G-N, already the impact is being felt the field. Keep in mind the new fice when dealing with your local AtoN ers and inform them of the Coast ard's efforts to better serve them. It l helps!

me further notes of interest:

ke sure you fill out the comment ction of the Boat Administration and nagement (BAMS) Report accurately. st units have been, some have not. Ms has been our primary source of formation for deciding when to replace boat. Without this information, it is xt to impossible to ensure timely or equate replacement. With it, we have e necessary information to manage NBs. Taking the time out to provide is information makes the job easier for eryone.

ENE has recently distributed the 46' SL Preventative Maintenance System MS) Manual to the district offices. is manual contains . . ."the detailed eventative maintenance procedures quired by current directives, manufac- rers recommendations and developments de in reaction to material failure and sualty experience in Coast Guard small ats." Utilization of the PMS Manual is ndatory. If you have yet to receive e manual, get in touch with your strict engineering office.

x 55' ANBs are to be built this summer r delivery to the 5th and 8th stricts. Delivery has been delayed on count of the failure of the boats to xe the required speed due to problems th the hull shape. This should be rrected by 1 AUG 80 and trials will en be held for Coast Guard acceptance.

Five TANBs have been purchased and released to the 1st, 3rd, 5th and 8th districts. These craft are of the 21' deep-V design, and will continue to be known as TANBs, but with a suffix; i.e. TANB-V. We expect to purchase several more TANB-Vs in FY-81 and begin replacing TANBs according to the TANB information submitted by each district. If you are having severe problems with your TANB, make sure your BAMS report reflects it and that your district aids to navigation office is aware of the problem. This will give the district the option to place the boat higher on their list of TANBs. For units receiving the new TANBs, inform your district aids to navigation office if any problems develop with the new TANBs or if the options found on the boat are inadequate or unsuitable for performing AtoN. The 1st and 3rd Districts have already informed us of some problems that we're looking into to determine what should be changed on the next TANB order.

G-EOE has just come out with a report on the status of ANTs in which they have identified some of the problems facing the ANT program. One area of particular concern has to do with workloads for ANTs. G-EOE has developed an ANT factor equation that is based on how much and what kind of work the ANT does and assigns it an ANT factor. This will hopefully allow us to compare relative workloads between ANTs. In the long run we may be able to use this factor in developing the staffing standards for ANTs and determine if imbalances exist in resources and workloads between ANTs.

One final note. The Aids to Navigation Manual COMDTINST M16500.3 (OLD 222-3) was delivered by the printer in March 1980, and distributed to most field units some time later. If you have yet to receive your copy, submit form CG 4428, Request for Directives, to Commandant (G-CMA) as explained on p. 3, Directives, Publications and Reports Index, COMDTNOTE 5600 of 1 April 1980.

HOUSE OF REPRESENTATIVES
WASHINGTON, D. C. 20515

MARIO BIAGGI
TENTH DISTRICT
NEW YORK

May 1, 1980

Rear Admiral Richard A. Bauman
Chief, Office of Navigation
United States Coast Guard
Washington, D.C. 20590

Dear Admiral Bauman:

I want to take a few moments to wish you the best on the establishment of the new Office of Navigation. For some time, I have felt that the aids to navigation and bridge administration functions of the Coast Guard deserved specialized attention. You can be assured that, as Chairman of the Subcommittee on Coast Guard and Navigation, I will continue to support any and all efforts to increase and improve all navigational safety programs.

With warm personal regards, I am

Sincerely,

MARIO BIAGGI, Chairman
Subcommittee on Coast Guard
and Navigation

MB:cm

cc: Admiral John B. Hayes

REAR ADMIRAL BAUMAN

A native of Fitchburg, Massachusetts, Rear Admiral Bauman is a graduate of the Massachusetts Maritime Academy, Class of 1944. Following graduation he sailed as a licensed deck officer in the U.S. Merchant Marine with war time service on various Atlantic and Mediterranean convoys including the Invasion of Normandy in 1944. Following World War II, RADM Bauman remained in the Merchant Marine receiving an unlimited Masters License in 1947.

RADM Bauman entered the U.S. Coast Guard in September 1957, under a program which provides for the appointment of licensed officers of the Merchant Marine as commissioned officers in the Coast Guard.

He is a graduate of the Armed Forces Staff College in Norfork, Virginia and the National War College in Washington, D.C.

RADM Bauman commanded Coast Guard Division Twelve made up of thirteen 82-foot patrol cutters engaged in anti-infiltration duties operating from DaNang, Republic of Vietnam. He commanded the Norfolk, Virginia based cutter INGHAM (WHEC-35) engaged in North Atlantic ocean weather station duties.

Among his medals are the Navy Commendation Medal with Combat "V", the Vietnamese Gallantry Cross with Gold Star, the Bronze Star Medal with Combat "V", the Joint Service Commendation Medal, and the Coast Guard Commendation Medal with Operational Distinguishing Device, "O".

Promoted to Rear Admiral in May 1980, he was assigned as Chief, Office of Navigation here at C.G. Headquarters.

The Office of Navigation

CHIEF, OFFICE OF NAVIGATION
UNITED STATES COAST GUARD
WASHINGTON, D.C. 20593

READERS OF THE AIDS TO NAVIGATION BULLETIN:

Along with many other Coast Guardsmen, I watched the planning for the new Office of Navigation with great interest - never dreaming that I would someday be the Office Chief. The concept of a separate aids to navigation organization at the Office level under the Commandant was not altogether new. Verily, I have met scores of individuals during the past few months who claim that the original idea was theirs. No matter how far back the concept goes, when the Commandant, Admiral John B. HAYES, gave the order to proceed with the accelerated planning and expedited establishment of the Office of Navigation, the reorganization became a reality. Because of the widespread support for obtaining increased focus on the Coast Guard's Aids to Navigation mission, the establishment of the new Office received total acceptance. I have since given talks which describe the Office of Navigation as the "Popular Reorganization." Even the personnel who have had their work spaces reshuffled and their desks upended and moved still totally support the increased emphasis assigned and the high visibility accorded our Aids to Navigation functions with the achievement of Office status. To say that I am personally pleased to be assigned to the new Office of Navigation would be a gross understatement!

There are many problem areas to be met and solved. Among the foremost is the desirability and utility of the SANDS system. Efforts are being made to obtain the resources needed to restore the many deteriorated lights and structures under the program direction of this Office. We have listened to the pleas of the mariners and have ordered RACONS for a considerably increased number of aids. The number of RACONS in our inventory should double this calendar year and then redouble during 1981. A program to use SOLAR energy to light substantial numbers of minor aids is being initiated. Together with District AtoN personnel, surveys of port areas have been scheduled to plan for the upgrading of port navigation systems where possible. Very close liaison with pilots has assured the input of our user interests. An effort to reduce the number of floating aids - often in conjunction with port systems improvements - has been initiated.

There is much effort ahead. The stress is on effort over study. I know that we can work together to maintain and improve the Coast Guard's aids to navigation mission. This office will always stand ready to receive any input, suggestion or ideas that will improve our service to the mariner. The forward thrust that produced this Office can be sustained to the benefit of one of the Coast Guard's oldest and most respected mission areas.

R. A. Bauman

R. A. BAUMAN
Rear Admiral, U.S. Coast Guard

Notes from the Deputy

by CAPT Peter J. ROTS

There is widespread concern about the deterioration of many unmanned lighthouses. This concern has been registered by the Commandant on more than one occasion, and there have been many congressional inquiries on the subject. While inadequate funding, manpower and managerial guidance are all causal factors, a case can be made that the underlying cause of the deterioriated condition stems from "out of sight, out of mind." It is also understandable that unmanned facilities may rank lower in priority in the competition for scarce resources. Nonetheless, these structures rank high in importance on the list of Coast Guard shore facilities.

The new Office of Navigation views upgrading of lighthouse structural condition and appearance as one of its primary initiatives. This means that generally we will be doing everthing we can to provide additional funds and personnel through the budget process. But the nub of the issue is what can we do now! In this regard, let me offer a few ideas, some of which are currently being employed in various Districts.

First of all, an evaluation on the state of repair of lighthouses in your area needs to be conducted. This means a rigorous program of finding out what is, and deciding on what should be. Once the delta is identified, positive corrective action can be taken. Obviously, some of this corrective action will be extensive and expensive. Programmed manintenance of this kind requires timely SSMR submittal. While it may have seemed fruitless in the past to add to an existing ECV backlog, we and the engineers in HQ feel that this is the only measure of the extent of the problem and the surest path to its correction.

For other less extensive work, a clear cut plan of utilizing available resources should be developed. This means directing ANT's and utilizing WLB/WLM's for structural maintenance and repair. Through innovative planning, such as amalgamating several ANT's into larger work forces and making work schedule adjustments, it is felt that large scale structural and cosmetic improvements can be implemented.

More formalized guidance on lighthouse maintenance is now in the drafting stage. I chose this medium as a quick means to reach all district aids to navigation offices. I felt it was important for you to understand that with the establishment of the Office of Navigation, lighthouse condition and upkeep is our responsibility. I ask that you give the new Office your whole-hearted support in this endeavor and in all cases keep us informed of your progress. Be assured that the Office of Navigation will support you to the best of our ability.

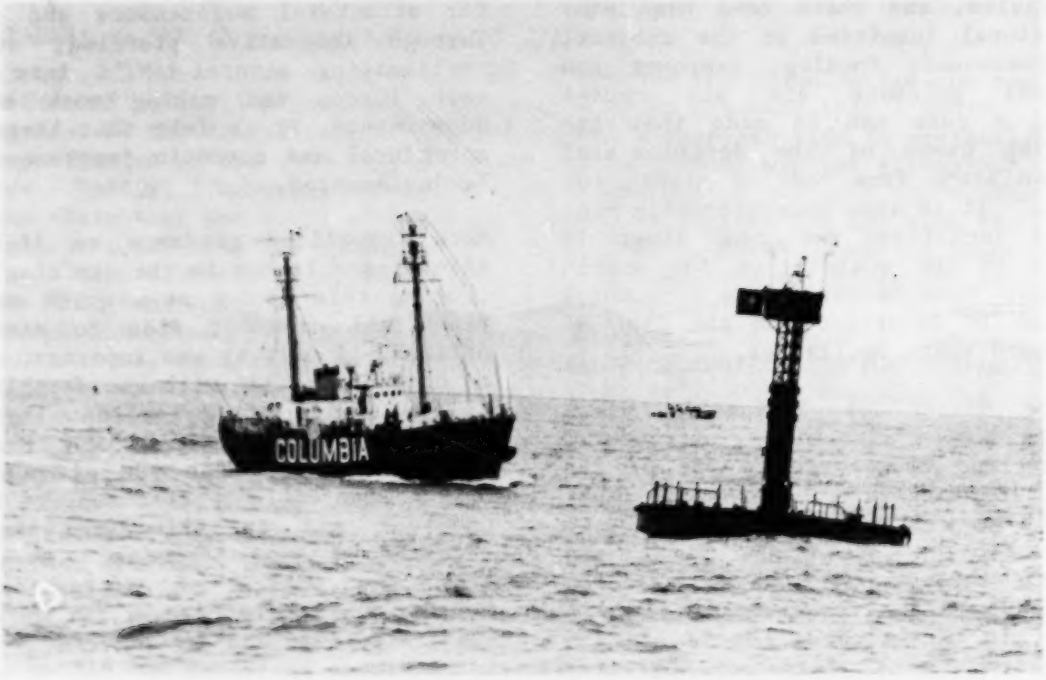
DO IT NOW....

SIT DOWN and WRITE OUT THAT SUGGESTION YOU'VE BEEN THINKING ABOUT.

READEX FICHE

Columbia River LNB Deployment

by LCDR R. SCHULZ (G-NSR) and Mr. Steve ROUSH (G-EOE)



The changing of the guard

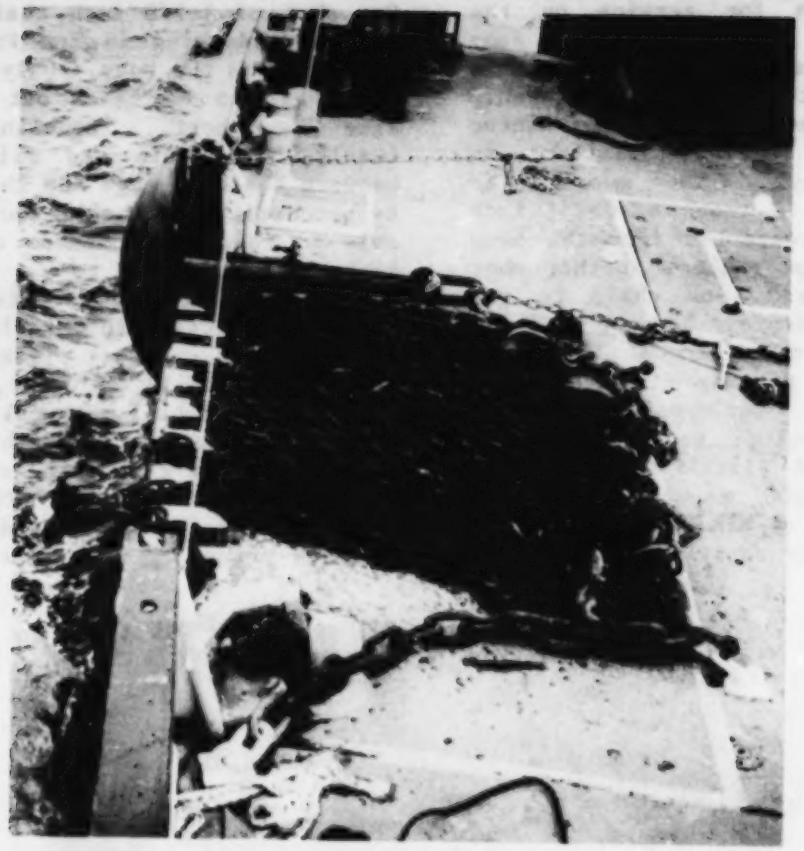
On 30 October 1979, Columbia River Large Navigational Buoy (CR LNB) was deployed at the Columbia River Entrance following seven months of planning and extensive preparations by CCGD13, CCGD12, G-EOE and G-NSR. The LNB relieved the Columbia River Lightship, ending 87 years of lightship service on the West Coast. Columbia, appropriately, was both the first and last lightship station in the Pacific. Light vessel 604, the last of several vessels that watched the Columbia River Entrance, was decommissioned 12 December 1979 at Astoria, Oregon, reducing the number of USCG lightships to two.

In addition to the LNB's normal signal suite, a fixed incandescent passing light was added to increase the mariners ability to judge the distance to the LNB at night. Since the synoptic weather data from the lightship was considered critical by the National Weather Service (NWS), a prototype weather sensing package was installed on the LNB to provide all necessary weather information, including wave height. The data is telemetered via satellite to a NWS collection point.

reparing an LNB for service on the olumbia River Bar presented some ifficult technical problems that had to e solved in short order if the lightship as to be relieved before severe winter torms precluded tender assistance in etting the buoy. The mooring is esigned to have 10 shots of 1-7/8 inch tud link chain connected from the buoy o the first 9 ton sinker, another shot f 1-7/8 inch stud link chain to the econd 9 ton sinker, and 3 shots of 1-1/2 nch stud link chain to a 3-1/2 ton ushroom anchor. Rigging up a deck for a pecial mooring deployment can be xtremely difficult, especially when -7/8 inch stud link chain weighs lightly over 3000 pounds per shot. owever, the crew of the CGC IRIS handled he deployment very capably.

One shot of 1-7/8 inch chain, installed during drydocking in San Francisco, was hanging from the buoy. Only 9 shots (810 feet) had to be faked out in the port side buoy port. Doubling back upon itself, the chain was piled knee-high between the deck edge and the bull chain. By purchasing two 4 shot sections we were able to reduce the number of detachable links needed from 11 to 4. To attach the chain to the sinker, we intended to hook the 9 shot section to the sinker bail and to attach the one shot piece to the other side of the bail. However, this scheme would make the bail the weak point in the mooring. This was unacceptable because it would have made the second sinker and the mushroom anchor useless. The 1-7/8 inch stud link chain has a break stength of 432,000 pounds and the detachable and

Port buoy deck



Starboard buoy port rigged for anchor deployment

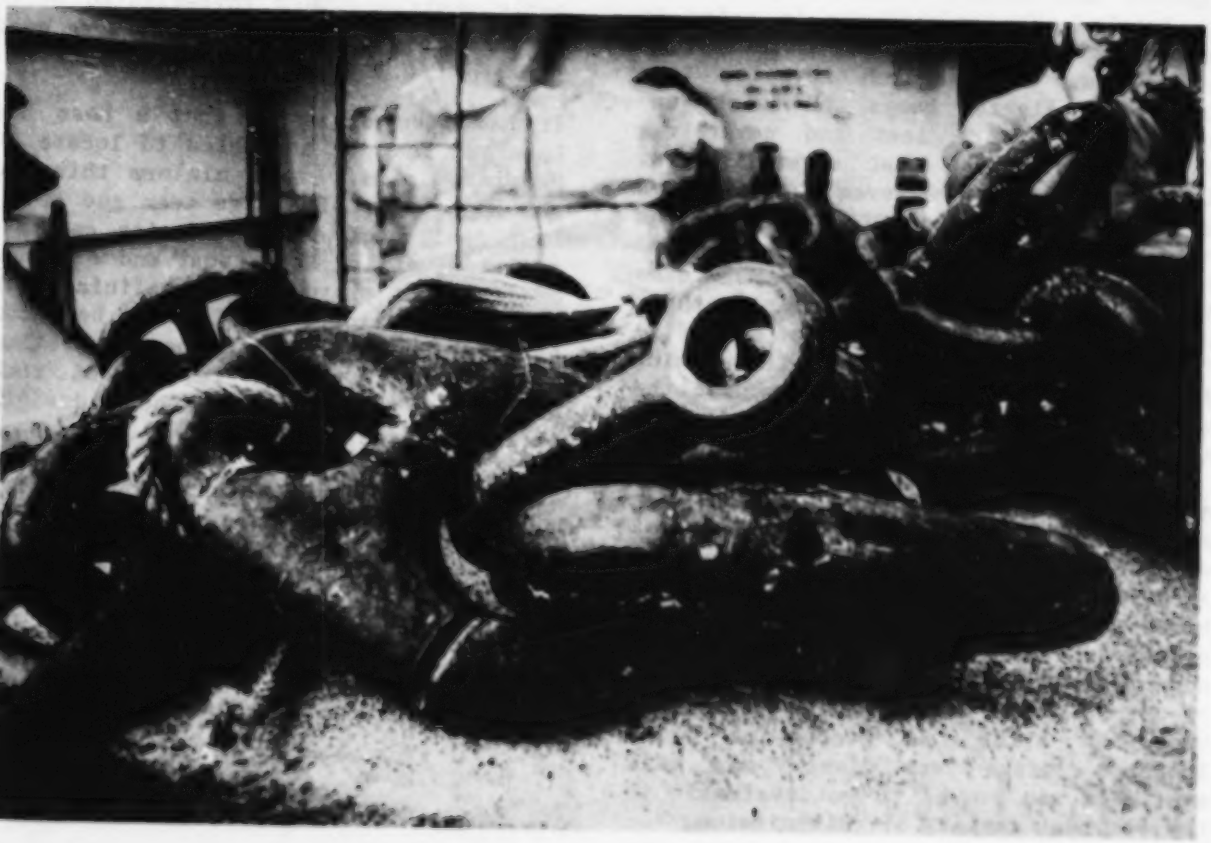
joining links have equal or higher break strengths. Instead, we joined two #5 pear-shaped anchor joining links, and attached a 1st class shackle to their intersection. One pear-shaped link was attached to the 9 shot section, the other to the 1 shot piece; the shackle was attached to the sinker. This method maintained the desired drag strength throughout the mooring. The shot of 1-7/8 inch was "hogged" under the vessel between the chain stoppers, so that it could be attached to the two sinkers in the stoppers. The connection at the second sinker is not as critical; at this point the 1-1/2 inch stud link chain has a break strength of 256,000 pounds rather than the 432,000 pound 1-7/8 inch chain. This attachment was made with the two chains coming to the sinker bail. The bitter end of the 1-1/2 inch was shackled to the mushroom anchor.

The deck was loaded with 9 shots of 1-7/8 inch and a 9 ton sinker on the port side. The starboard side held a 9-ton sinker, 3 shots of 1-1/2 inch chain and a 7000 pound mushroom at the after end of the buoy port. Before we got underway, we decided to gripe down the chain in the ports -- we would have hated to see that nice faking job slide over the side as we crossed the Columbia River Bar. The faked chains were also secured with rotten-stuff (old mooring lines -- not 21-thread) and each end of the chain piles was held with pelican hooks. As the vessel left Base Astoria, the deck was loaded with 33,000 pounds of chain, 36,000 pounds of sinkers and a 7000 pound anchor.

Once on station the gripping chains were removed. The mushroom anchor and the starboard three shots were deployed first

by releasing the after pelican hook. With 270 feet of chain out in 180 feet of water, the IRIS was moved ahead to set the anchor and to keep the sinkers from dropping on it. The LNB was brought alongside by a 44-footer and the nine shots on deck were connected to the shot under the buoy. As the 44-footer held the buoy off, the lower three shots of the nine were pushed over. We hoped that this would reduce the shock on the vessel when the sinkers were released. The chain leading to the buoy was still held on deck with a pelican hook.

When two sinkers separated by 90 feet of chain are dropped, the timing of the chain stoppers' release is important. If the second stopper is not released immediately after the first, a static load of a least 42,000 pounds will be experienced by the second stoppper. As the deployment operation began the starboard pelican hook was released. A man with a 12-pound sledge stood by the port (where the timing is most important). When the signal to drop the sinkers was given from the bridge, three blows hit the starboard stopper. One blow hit the port stopper and the CGC IRIS pitched as 76,000 pounds of mooring and a 192,000 pound buoy was released as the last pelican hook was tripped. Although it is regretful to witness the end of an era, it is satisfying to be part of a modern aids to navigation service force improving service to the mariner.



The two pear-shaped anchor links

Buoy Recovery Operations

by LCDR James D. HULL

During 24 September - 4 October 1979, the USCGC RED BIRCH was in charge of buoy recovery operations in the Upper Chesapeak Bay area. This effort resulted in the recovery of two 7 X 17 LBs, two 6 X 24 LBs and all the associated mooring equipment. The cost to the Coast Guard was the TAD cost of five Atlantic Coast Strike Team Divers plus the $2,500 that RED BIRCH expended for fuel. Based upon the fact that the salvaged equipment was valued at well over $40,000, the operation was deemed a success.

The effort began by checking aids to navigation maintenance records and talking to knowledgable individuals in order to determine the most probable locations of lost aids. The search revealed that twenty-two lighted buoys and twenty unlighted aids were lost and never recovered during the past several years. The possibility that even more lighted aids were lost during winter months was very high because of the past practice of suspending the submission of SANDS forms during periods of severe winter weather. In addition, the utilization of many different tenders to service these aids during periods of heavy ice hampered the keeping of accurate aids to navigation maintenance records.

A concerted effort to recover these lost aids was not undertaken until the services of a dive team were made available. A dive team was considered essential because of the uncertainty of the positions of the buoys, energy consumption of the RED BIRCH, and because of the recovery and locating techniques that RED BIRCH was proposing. The Atlantic Strike Team divers were made available and proved to be invaluable to the eventual success of this mission.

The method used to locate the sunken buoys was a variation of the wiresweeping techniques used by construction tenders. A 700 foot alternating wire and chain drag 500 pound grapnal was used. Once hooked, it was slowly brought aboard. Experienced, competent divers were a necessity in these recovery procedures, expecially when one considers that the water visibility was three inches at best.

The lost buoy stations were investigated in order of probability of recovery, starting with the most probable and working through the list. In all, six probable positions were investigated during the seven days that the divers were available.

It has been suggested that a Lost Buoy Locating Team be assembled to locate the remaining aids. As a minimum this team should consist of a dive team and have a boat designated solely for its use. In addition, a side scan sonar and a magnetometer might prove to be beneficial. The Corps of Engineers should also be interested in assisting with these operations because the eventual removal of these aids would benefit them where dredging operations are likely.

In summation, this information has been passed on with the hope that someone may benefit. In today's belt tightening environment, the savings that would be realized by recovering lost aids could then be reprogrammed into another more needy area.

pages tightly bound

ok now!
Keep your Eyes open
for a black #3
bell buoy!

Was That Chain Manufactured in North or South Korea ?

by LCDR James J. SHAW JR., USCGC ACACIA

Remember the Korean chain flap? It still lives! As the stalwart ACACIA buoy gang was pulling chain during a routine mooring inspection, the chain parted at the top of the pick, with essentially no strain other than the weight of half a shot of chain riding over the stopper. Needless to say this got the attention of everyone! We took a moment to evaluate the situation (get our collective pulse back to normal), and then decide to try recovering the remainder of the mooring. The stopperman then made a fine adjustment with the sledge hammer to set the chain firmly in the stopper and the chain parted again, losing the sinker. At this point we counted ourselves lucky no one was hurt and contemplated a suitable diabolical reward for those responsible for the manufacture and distribution of such a fine example of foreign craftsmanship. For any of you that may know of any remaining Korean chain, any where near aids to navigation operations, including just hanging around the buoy yard awaiting disposition, I urge you to get rid of it. There was another lesson driven home to those of us on board ACACIA - DON'T TAKE ANYTHING FOR GRANTED OR YOU'LL HAVE A DEEP CREASE IN YOUR HARD HAT.

Editor's Comments

The Korean chain flap will live even longer in the American court system. At this time the Coast Guard has a million dollar lawsuit against the importer of the chain. We in turn have a $200,000 lawsuit against us for non-payment. While it is agreed that the Coast Guard should get rid of the chain, it may be needed as evidence in the litigation. Thus, it must be kept until legal gives persmission for release. For those of you who are new to the A/N game since the Korean chain deal, perhaps some background is in order. In 1975 we saw very high chain prices ($433/shot for 7/8" and $1,066/shot for 1 1/2"). At this time a new contractor came to the Coast Guard. A pre-award survey was conducted in 1976 and his chain passed all tests. This action permitted him to be awarded a contract on 9/29/76 at a savings of $80K to the Coast Guard. The chain was tested, found acceptable and delivered. There have been no complaints with this chain. On 4/19/77, a second contract was awarded to the Korean firm at $93K below the next bid. This chain was delivered and used without complaint. On 8/19/77, a third contract was awarded at a savings of $130K. This was the contract in which problems occurred.

Reports from the field after delivery of the third contract indicated that the chain was failing at very low loads (i.e. 10-25% of break strength). Consequently, ALDIST 182/78 was issued stating that all chain received after 1 JAN 78 should be proof tested. At the same time, COMDT (G-EOE) observed testing of some of the alleged "bad" chain and found that of 11 break tests performed, 10 of them were at or below 50% of the rated break strength. The results of this testing caused the Commandant to issue ALDIST 203/78 less than one month after ALDIST 182/78. The later ALDIST stated that . . . "All chain received on contract DOT-CG35-3046B with the manufacturer's trademark [keystone with concave bottom] marked on each end link shall not be used for any purpose. No exceptions shall be made." Special funds were made available and used in an emergency procurement of new chain to replace the bad chain. IF YOU FIND ANY CHAIN ON A BUOY WITH THE ABOVE END LINK MARK, WATCH OUT, REMOVE AND REPLACE. Until we have our day in court, all Korean chain at the bases must stay there. As soon as COMDT (G-LPL) releases the chain, we will notify the districts and bases of the release. If you have any problems or questions with chain, wire rope and/or synthetic line just give a call to Steve Roush (FTS 426-1102) COMDT (G-EOE-4).

Hurricane Frederic

by Coast Guard Group Mobile

Damage to building and scattered debris. Barge in foreground was driven about 25 yards inland.

The devastation was widespread, incomprehensible and awesome! These were the thoughts of most Mobilians the morning after Hurricane Frederic's cataclysmic onslaught the night of 12-13 September 1979. For the Coast Guard, especially Group Mobile, the storm meant the largest aids to navigation restoration program probably ever undertaken. However, to fully appreciate the scope of the task, it must be examined in the light of the overall impact of the storm which exceeded five billion dollars in damage to the Mobile area.

Mobile: Damage and Effect

The storm's 130 MPH winds and numerous imbedded tornadoes smashed full force into metropolitan Mobile and its suburbs encompassing an area of over 200 square miles. Electricity, including all incoming primary distribution lines, was 100% interrupted. Phone service was 85% inoperative, and in many areas water and gas service were also interrupted. Thousands of power poles, huge pieces of debris, and nearly ten thousand downed trees blocked streets. The power interruption forced all gasoline stations and practically all businesses to close for the first two days after the storm. A complete curfew was placed into effect, but in spite of that, looting quickly became a serious problem.

Coast Guard Damage and Impact

The storm's effect within Group Mobile can be divided into four areas: Aids to Navigation, Base Mobile Proper, CG Station Santa Rosa, and the USCGC POINT VERDE.

As mentioned above, the storm caused widespread destruction of aids in the Coast Guard. The area affected extended from Pensacola, Florida to Gulfport, Mississippi. At first light after the storm, an aerial survey was undertaken throughout the area. Final evaluation indicated that 418 aids had been destroyed, including 28 major ranges on the commercial ship channels of Pensacola, Mobile, Pascagoula, and Gulfport. Aids

had also been destroyed in key portions of the intercoastal waterway. In effect, oceangoing and coastal commerce were at a standstill.

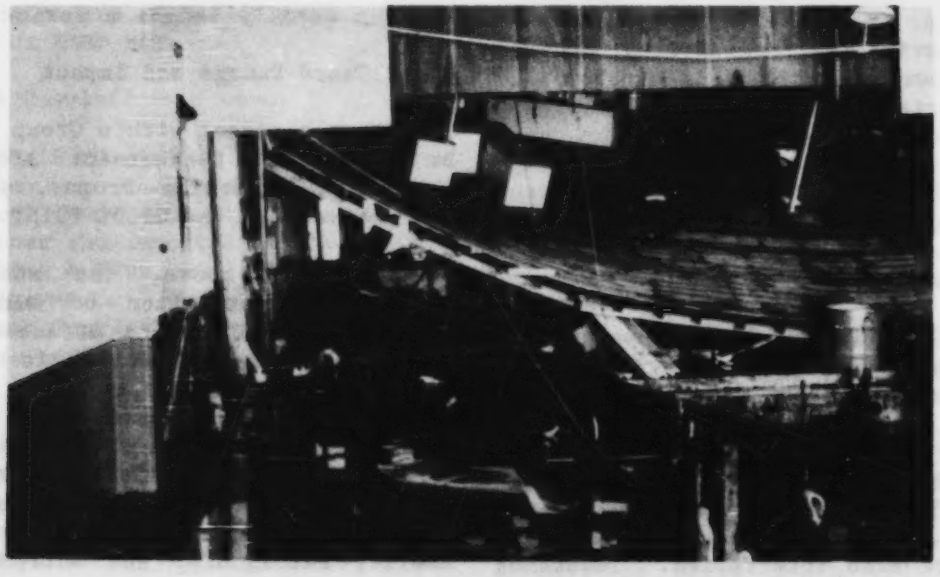
Base Mobile is the primary industrial and support facility for the Group and was exposed to the full brunt of the storm. The Group Operations and Communications Centers were manned by a skeleton crew throughout the night of the storm. The building sustained considerable damage and the boathouse was virtually destroyed. Tons of waterborne debris littered the Base, the removal of which became a high priority project in order to service the A/N tenders which were essential to restore the aids. Loss of power meant an inability to perform industrial services and the impact of the storm on the personnel of the Base could have had serious impact on the Base's effectiveness.

Logistics

Initial estimates for restoration of storm-interrupted facilities were $250,000. In all, $196,000 were spent during the first 15 days after the storm, including nearly $40,000 for emergency restoration of services at Base Mobile. The total for all storm damage and related costs is now over $800,000.

As mentioned above, the storm nad severe impacts on many local businesses, making procurement quite difficult. Businesses of many normal vendors in the city were completely destroyed, and many others were closed. The city-wide curfew forced many businesses to close early, further restricting procurement. Last, but certainly not least, there was fierce competion for available services. This latter point made normal bid taking procedures worthless and required on-the-spot evaluation of offers for performance and acceptance or rejection. One especially critical problem was a shortage of aids to navigation batteries. The Supply Officer personally arranged with the President of McGraw-Edison Company to have a large

Inside of boathouse, with collapsed second floor



Looking down the main street of the base

batch specially manufactured and shipped within four days, instead of the usual several week delay in order processing. A CG C-130 picked them up in New Jersey and delivered them direct to Mobile.

ACCOMPISHMENTS

Aids to Navigation.

Mobile Ship Channel was opened to ocean-going traffic on 17 September and was completely restored on 3 October.

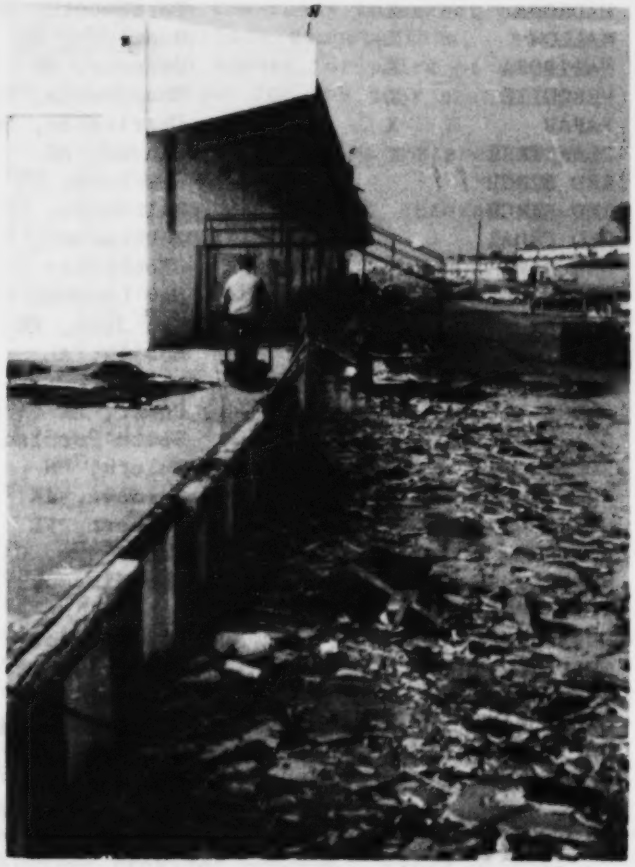
Pascagoula Channel was restored to service on 4 October.

Pas Aux Heron (on the intracoastal waterway) was completely restored on 29 September.

Pensacola Channel was opened on 5 October - the deadline to permit sailing of the USS LEXINGTON for a Navy Training Exercise.

Remaining discrepancies were corrected by 7 October.

(cont. on p. 45)



Wind blown and water borne debris outside the main base building

WLM & WLB CO's

SHIP	WLB	WLM	HOMEPORT	COMMANDING OFFICER
ACACIA	X		Grand Haven, MI	LCDR J.J. SHAW
BASSWOOD	X		Guam	LCDR G.O. MONTOYA
BITTERSWEET	X		Woods Hole, MA	LCDR L.B. TYO
BLACKHAW	X		San Francisco, CA	LCDR G.H. MERCIER
BRAMBLE	X		Port Huron, MI	LCDR R.J. COLLINS
BUTTONWOOD	X		Honolulu, HI	CDR R. BELL
CONIFER	X		Morehead City, NC	LCDR R. O'TOOLE
FIR		X	Seattle, WA	LT M.J. HOUCKE
FIREBUSH	X		Kodiak, AK	LCDR R.M. WESSLING
HOLLYHOCK		X	Miami, FL	LT R.W. BATSON
HORNBEAM	X		Cape May, NJ	LCDR D.J. WEST
IRIS	X		Astoria, OR	LCDR R.T. GLYNN
IRONWOOD	X		Kodiak, AK	LCDR E.R. RIUTIA
LAUREL	X		Ketchikan, AK	LCDR G.H. KEMP
MADRONA	X		Portsmouth, VA	LCDR D.I. LIESTON
MALLOW	X		Honolulu, HI	LCDR H.W. MOTEKAITIS
MARIPOSA	X		Detroit, MI	LCDR R.J. PARSONS
MESQUITE	X		Charlevoix, MI	LCDR D.D. LUNDBERG
PAPAW	X		Charleston, SC	LCDR T.T. MUSSELMAN
PLANETREE	X		Juneau, AK	LCDR R.G. SEAGRAVE
RED BEECH		X	New York, NY	LT C.T. WINFREY
RED BIRCH		X	Baltimore, MD	LT D.W. MCKENZIE
RED CEDAR		X	Portsmouth, VA	LT R.R. BEARDSWORTH
RED OAK		X	Gloucester City, NY	LT M.L. HUNT
RED WOOD		X	New London, CT	LT W.D. CLINE
SAGEBRUSH	X		San Juan, PR	LCDR R.C. HOULE
SALVIA	X		Mobile, AL	LCDR J.C. TANNER
SASSAFRAS	X		New York, NY	LCDR G.R. PERREAULT
SEDGE	X		Homer, AK	LT J.J. FONTANA
SPAR	X		South Portland, ME	LCDR P.J. BIBEAU
SUNDEW	X		Duluth, MN	LCDR W.E. MILLER
SWEETBRIER	X		Cordova, AK	LCDR R.C. OLSEN, JR.
SWEETGUM	X		Mayport, FL	LCDR J.A. SMITH
WALNUT		X	San Pedro, CA	LT T.W. NEWELL
WHITE BUSH		X	Astoria, OR	CWO4 J.E. RIVERA
WHITE HEATH		X	Boston, MA	CWO2 F.G. DZIECIOLOWSKI
WHITE HOLLY		X	New Orleans, LA	CWO2 R.N. HARRISON, JR.
WHITE LUPINE		X	Rockland, ME	CWO4 W.D. MOULTON
WHITE PINE		X	Mobile, AL	CWO4 K.E. MCFELEA
WHITE SAGE		X	Woods Hole, MA	CWO3 R.E. RAINVILLE
WHITE SUMAC		X	St. Petersburg, FL	CWO3 J.O. WEBB
WOODRUSH	X		Sitka, AK	LCDR J.A. CREECH

Calculator-Assisted Procedures (CAP I) for Positioning Buoys

by LT T.J. MEYERS

Since December 1978 REDWOOD, PAPAW, RED BIRCH, and RED CEDAR have been involved in a pilot R & D Center study in support of the Headquarters Aids to Navigation Positioning Project (ANPP). Using the HP-97 calculator we have the capability of performing analytical calculations based on horizontal survey control to improve our positioning accuracy and precision. In practice, it has given the field unit a computation capability similar to but smaller and slower than the district's HP-9825 desktop computer. We have found it to be a valuable tool in positioning buoys in a more professional manner. We have no computer wizard aboard and have relied soley on the R & D Center for programming our machine. Nevertheless, we have made suggestions for new programs, have the know-how to run the thing, and are confident in our results.

THE MACHINE

The HP-97 is a programmable, printing calculator. It has a typical adding machine style keyboard and a three-way printer for recording answers on tape. It can be operated from a rechargeable battery pack. Problems can be solved manually, using prerecorded programs, or by writing your own program. Data can be recorded and stored on magnetic cards. The CAP-1 project uses the machine thusly:

GETTING READY

Most of the work is done before we're on-scene, preferably during non ..ectic inport periods. Using a data sheet to collect information, the user researches the geodetic positions of the buoy and up to six objects. (A competent user can compute for more than six objects with a little forethought.) It is useful if the operator is familiar with the operating area to know what charted or other surveyed objects can usually be seen. He also uses a chart and previous positioning object information from SANDS. The horizontal control or geodetic positions are found in an NOS provided computer printout acquired from ANPP in HQ. It lists latitude and longitude for every charted object to hundredths or thousandths of seconds. Buoy positions are in the same digitized format. Visible but uncharted objects may be found in horizontal control from other sources if necessary. Once geodetic positions are determined, the operator enters the information into the calculator in a prepared format. Standard forms facilitate the process and, along with comparison against a printed tape, help the operator ensure the data is correct. We are now ready to select pairs of objects to perform computations. By keying in a code number for pairs of objects, we get as output for the buoy station:

True bearing to 1st entered object (to .01 degrees)

True bearing to 2nd entered object (to .01 degrees)

Difference angle (ideal sextant angle) (to .01 minutes)

LOP direction (to .01 degrees)

Positive gradient direction perpendicular to LOP in direction of increasing angle (to .01 degrees)

Gradient (to .0001 meters/minutes)

Distances to both objects (if desired) (to .01 meters).

Doing this for all combinations of object pairs, the operator must evaluate the results and determine which lines of position used together will give the best quality fix. To do that, he first rank orders the LOP's by gradient. He then compares the crossing angles of the LOP's that have the better gradients. He will then chose the three pairs of objects that give the best fix (three LOP's needed for a fix) either subjectively or by using another provided program. Armed with this we are ready to position the buoy.

MANEUVERING TO POSITION THE BUOY

We have determined by geodetic survey-level computations the angles for where we really want that buoy to be. How do we get there? Some CO's suggest that the best way is by drawing and using buoy grids to determine bearing and distance to charted position. Others feel the best way is the "glass method." I am convinced that both methods can be "the best." Different circumstances and maneuvering conditions should dictate which one to use; there are reasons to select one method over another (I'll argue this some other day.) In any case, the calculator gives us a third option: a "guidance-assist program" for use in conning the ship. The conning officer or an assistant first keys in the direction of the LOP, the positive gradient direction, and the gradient for two LOP's which will be used to conn the ship. He also enters the distance the angle takers are from the chainstopper and the intended ship's head. We are ready to maneuver, and key in the two observed sextant angles each time they are read. Calculator output will be direction and distance to CP, and it's ready for another set of angles. As the ship's head changes the operator must simply enter the new value into the calculator. The process continues until you're at CP. Don't forget to shoot at least one check angle, bearing, or range. (Note: I usually use the glass method instead).

WHERE DID WE REALLY PUT IT?

A post-observation program is used to evaluate the "Most Probable Position" at which the buoy was set. After entering certain data for at least three LOP's, the calculator tells us how far and in what direction the buoy was set from CP as well as parameters which at this point will primarily be used by the R & D Center for analysis. How close is close enough? Some of the objectives of the R & D project are to evaluate consistency of fixes, compare MPP's with desired positions, and determine the degree of improvement resulting from calculator-assisted procedures. Because REDWOOD has been using and recording three angles on SANDS forms for about five years, there will be some historic data for comparisons. During the past summer two CGA Cadets assigned to the R & D Center compiled this data from our files. It, and the work we're doing, may be used to help establish standards of accuracy and give some guidance in answering, "How close is close enough?"

SOME OTHER STUFF

There are other aspects, implications and merits to this project. Most importantly, the people working the calculator must be trained. Not only must they be able to punch the right buttons, but it is imperative they also understand the basic principles of positioning buoys, be it by horizontal sextant angles, LORAN-C ranges, bearings, or whatever! The calculator has not eliminated the need for thinking. In our experience, the machine has caused the bridge gang to ask themselves questions like: "What am I trying to do?", "What do these numbers mean?", and often "Does this make sense?" We've learned a lot from it. Secondly, procedures have been incorporated and forms developed to provide step-by-step guidance. In practice, we check and double-check results with the chart and three-arm protractor to identify and eliminate gross blunders. Now that we've become reasonably comfortable with the project, it takes the QM's about 45 minutes to research, record, and calculate for each aid. Subsequent visits require a few minutes review. In addition to the typical horizontal sextant angle fix we have the ability to do other things. We have a calibratable prediction program which uses LORAN-C chain constant cards. We calibrate at a known latitude and the calculator will compute adjusted time differences for another latitude and longitude such as a buoy station. It also provides the LOP direction for each LORAN line, and the gradient. A post-observation program for LORAN lines can

pages tightly bound

find out where we really put it. Another post-observation program permits mixing types of LOP's. For example, one day we may be able to see only two objects, we shoot the sextant angle, take the gyro bearings, and get two radar ranges. Once again, the machine will compute a most probable position based upon those five LOP's.

CONCLUSION

As noted by others before, we are at a point where our analytical capability to determine position coordinates exceeds our ability to maneuver the buoy tender into the desired position. The CAP project may help develop buoy position accuracy standards that are realistic. We believe what we're doing with the calculator supports professional buoy positioning when used with calibrated instruments and good records. We like it.

R & D CENTER COMMENTS

The "best fix" determined by the calculator at this time is that set of LOP's which produces the expected error ellipse with the smallest major axis. Incorporation of other alternative criteria may be forthcoming. Grid plots can be used with the "glass method" of maneuvering. Sight on an object such that the reflected and direct images are one glass apart. The sextant reading indicates the size of the angle which subtends one glass. This value will be different for different sextants. Your grid plot cannot be scaled in terms glasses and fractions of glasses.

CAP I pilot project used buoy tender feedback in an attempt to establish realistic buoy positioning standards. Although useful information was obtained from CAP I, it has been determined that the district office can more efficiently perform aid positioning analysis. If any unit desires to use a calculator to aid in positioning, LT Dave BEAN (G-NSR-3) can provide programs and instructions.

Pole Climbing Training

BM1 J.E. Hazelett
Officer in Charge, ANT San Diego
Eleventh Coast Guard District

Several daybeacons in San Diego Bay, located on single wood pile structures, have been vandalized recently. The piles were equipped with steps providing easy access.

We considered various methods to discourage the vandalism, finally removing the steps and working from a boat using a ladder. As Officer in Charge, I was not completely satisfied with this procedure because of the safety aspect.

In checking with various local agencies and private sources, I was invited to attend a pole climbing training course offered by the Bell Telephone Company. The training was provided at no cost. In November 1979, I was given four days of intensive training in the use of various types of tools and equipment, safety procedures and techniques and actually performed work assignments on poles and ladders.

When I returned to my unit, I was able to apply what I learned immediately by replacing several of the daymarks. This was accomplished in less time, with less effort and in a much safer atmosphere than at any previous time.

In summary, the training was thorough and complete, it provided exactly what I wanted and was accomplished at very little cost. I believe that this type of training, if considered necessary, can be obtained from a similar source. The telephone companies continually conduct this course for their employees and were very helpful to me.

Thoughts On Positioning

by LT Glenn HOLMDAHL

In our travels through the district offices and on positioning units of all different types, the HQ-ANPP staff has found some problems in positioning priorities. This article is intended to emphasize several key ideas about positioning.

First, I think it's important that everyone knows how a buoy gets plotted on a chart. The district can direct a unit to establish a buoy in position such-and-such, and that's where the unit puts it. Then the position of the new aid is published in the Local Notice to Mariners, where NOS picks up the position and plots it on their master chart for the next chart edition. Or the district tells a unit to establish a buoy in a place that best marks a turn (or a channel, obstruction, etc.). The unit places a buoy in a spot satisfying the district's directive, determines a position, and sends the information to district. District checks, then publishes the position in the Local Notice to Mariners, from which NOS picks it up and plots it for the next edition.

The main point in the discussion above is that NOS gets the buoy position <u>from the Coast Guard.</u> We <u>do not</u> get the buoy position from NOS. We try to put a buoy back on CP only in the interest of consistency, that is, not having to change the chart every time a buoy is relieved. In this way we keep our own paperwork load down, and more importantly, we're not confusing the mariner with needless changing of familiar buoy positions. But when a buoy is no longer doing the job it was put there to do, the CO/OIC should put it where it <u>does</u> the job. It's then his responsibility to take measurements for the new buoy position. We are NOT bound by the charted buoy position when that position does not serve the needs of the mariner, and through the LNM we change the charted buoy position to a position that does serve the mariner.

Gradient diagrams drawn by the districts use the charted position of the buoy which is found one of three ways. The first way is with a list of charted buoy positions from NOS (regrettably, not all districts have this yet). The second is by looking back in old district records. The third is by scaling it from the chart (admittedly inaccurate, but sometimes it's the best we can do). NO MATTER WHICH SOURCE IS USED, ALL CHARTED AID POSITIONS, <u>WITHOUT EXCEPTION,</u> MUST BE VERIFIED BY THE UNIT. In other words, the position for which the first gradient diagram is drawn must be checked to see that real world conditions are marked, instead of conforming to what's on the chart (how many times have rocks, ledges, or even whole channels been mischarted?). If it doesn't, then the unit, as always, must find the place which, in the judgement of the CO/OIC, best serves the needs of the mariner, and take horizontal angles for the new buoy position. Those measurements will be used by district to <u>calculate</u> an accurate latitude and longitude to be published in the LNM. NOS will pick up the change in position there and put it into the next chart editions. COs/OICs must not be afraid to move the buoy to a better location in the real world, regardless of what the chart shows, and take measurements to find the position.

Okay, now I know some of you are going to take issue with that last comment, "regardless of what the chart shows" because the chart is what the mariner uses and, if we have moved the buoy to some <u>other</u> position, then we haven't served the mariner. But, don't forget that because the Coast Guard put those buoy positions on the chart (indirectly) in the first place, we can change them. And it's the mariner's responsibility to change his chart according to the LNM. If the charted position of a channel, ledge, or other danger doesn't agree with what we've measured in the real world, then (after carefully

ecking to make sure we're right) we've t to notify NOS and the mariner (with M) that we think a charting error ists. And if the chart's wrong, we tter leave the buoy where it works st in the real world, where it does the riner the most good, and not where it rks best on the chart.

ny units plot the precomputed angles ven to them by district to see if they ot in the center of the buoy symbol. In e few cases where the precomputed angles ot close, but not quite exactly in the nter of the open circle, and after all e input information for those calculaons has been checked, we have seen units cide to take their own angles off the art and use those rather than trust the mputed angles given them by the strict. There's no good reason why they ouldn't trust mathematically computed lues over those measured by a protractor at has a manufacturer's tolerance of ± in each angle on a chart that possibly mischarted objects and has been ded. Possibly it's because they trust something that's new that they 't totally understand.

they'll conn in on two sextant angles the precomputed angles given for the ter of the gradient diagram, plot those les on the chart and find out those les don't plot in the center of the n circle. "The gradient diagram's %¢&*!!!", they'll say, without even ing to take a check angle to get a angle on the gradient diagram, the ter of which does plot in the center of buoy symbol on the diagram. You see, t's a big problem with a three arm tractor--it won't plot three angles, without that third LOP thrown in, you en't got a good fix!! How many of you there would trust a fix made up of two bearings? You'd sure like to have ee, right?! Sextant angles are no ferent!! You know that two lines of position don't make a good navigational fix, let alone a good positioning fix. And when you're shooting sextant angles, if it's possible, you shouldn't use common objects because if one of those objects has a bad position, then at least one angle (if it's the right or left object) and possibly both angles (if it's the center object that's off) will not be correct. And of course the only way to check for that is to shoot that third angle!

When checking how the buoy position on the gradient diagram compares with the position on the chart, a three arm protractor should NOT be used. Instead, the position on the gradient diagram should be transferred to the chart using a scale, dividers, or parallel rules. If the buoy position on the gradient diagram is not in the center (for instance, when the buoy has been moved or when verifying the diagram position), the coordinates can be found by using the Distance/Position Interpolator, which is like a LORAN interpolator. If you don't have a Distance/Position Interpolator, you can get one from your district ANPP representative. District ANPP staff: If you don't have the program to generate the interpolator, call HQ-ANPP.

What if the gradient diagram position and charted position don't agree? Luckily, this doesn't happen very often, but when it does there could be any number of reasons why. Check that the right objects are being used for sextant angles. Try using another angle to check those that have alrady been used, and use different objects so that an object with an inaccurate position can be found. Check that the positions of the objects are correct and plotted correctly on the chart. It should be emphasized that if the listed object position and charted object position don't agree, that object should not be used for fix information until someone from NGS or NOS can find out which posi-

(cont. on p. 41)

Buoys Sunk by Gunfire

by Mr. William H. PATTERSON
CCGD11(oan)

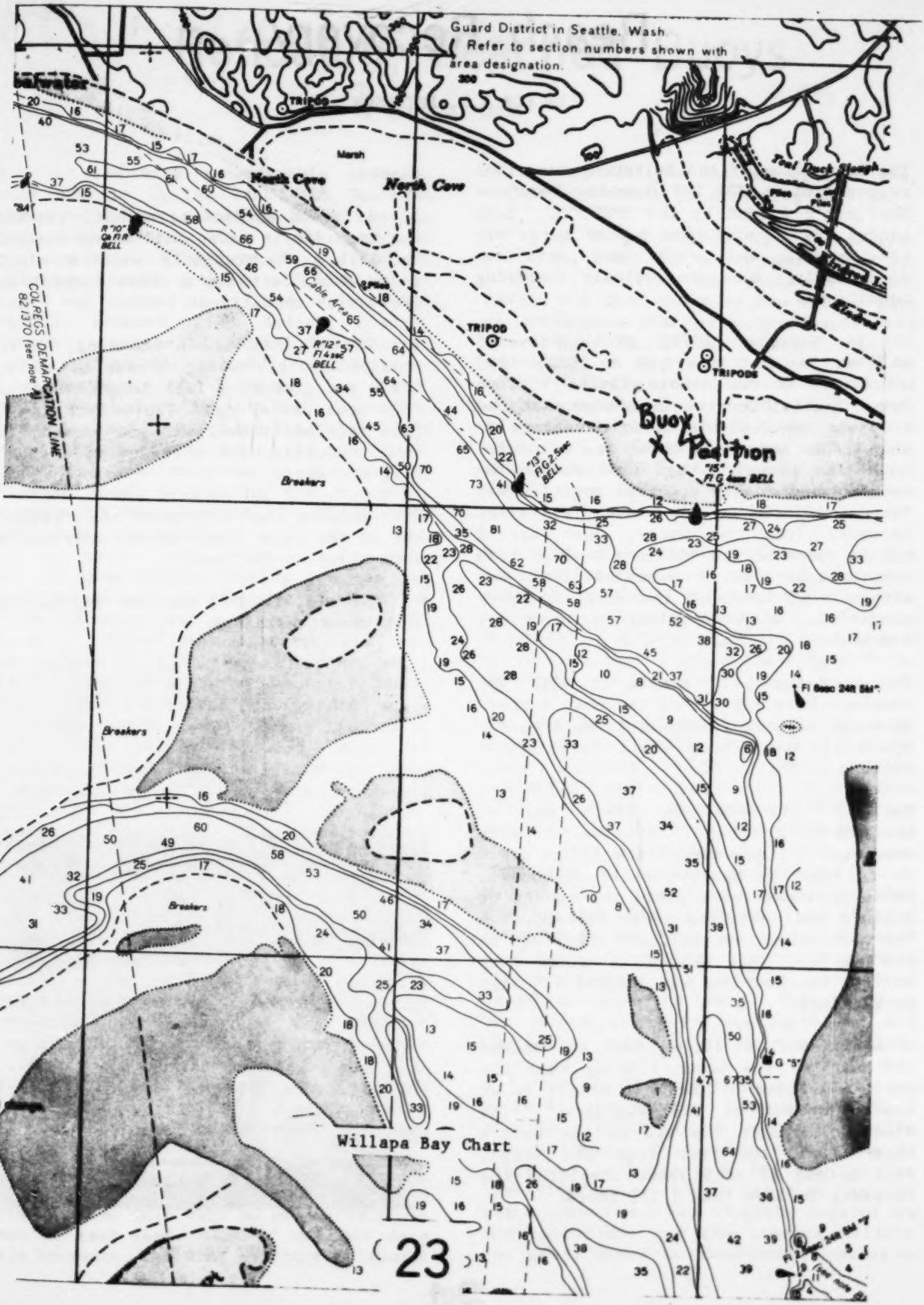
During the period from July 1977 through September 1979, the Eleventh District suffered a rash of vandalism as never before experienced. Seven 8 foot lighted bell and whistle buoys were sunk by gunfire during this period. Each was recovered by CGC WALNUT. In addition, two buoys were found on station with bullet holes and were repaired before they could sink, and two more buoys were lost completely. It can be reasonably concluded that the two buoys not recovered were sunk by gunfire as they were in the same general area as the others. All buoys involved were 8 x 26 LB or LBR or LWR. Of the total of nine 8 x 26 buoys sunk, seven were recovered by WALNUT by dragging.

One buoy in particular, Palos Verdes Point Lighted Buoy 10, was sunk four times in the two year period, and was recovered on each occasion. It is located in 130 feet of water. The crew of the WALNUT, using the grid system designed for positioning buoys, was able to recover several of the buoys quickly. The proper use of the grid system has proven its value in the recovery of the buoys. By accurate positioning of the buoys, and maintaining accurate records, WALNUT was able to drag effectively.

In an effort to reduce or stop the vandalism, the public awareness program was accelerated as well as the foam filling of buoys. Four of the 8x26 buoys are filled with polyurethane foam, MIL-SPEC P-221919 as prescribed by District Civil Engineering Branch.

The public awareness program was increased by repeatedly publishing articles on vandalism in the Local Notice to Mariners, citing the resulting costs to the taxpayers and the resulting danger to the mariner. This type of information was also published in local newspapers and carried in spot radio broadcasts. In one instance, a reward was offered. District Intelligence and Law Enforcement Agents and Coast Guard Reserve Special Agents were assigned to investigate the sinking of the buoys by gunfire. The agents visited the residential area overlooking the Palos Verdes Point LWB 10 area. They explained the problem and requested assistance from the citizens. As a result of this approach, a citizen advised the Coast Guard on 17 September 1979 of a shooting incident in the vicinity of Palos Verdes buoy on that morning.

A suspect vessel was identified and within half an hour, a Coast Guard UTB boat had checked the buoy, proceeded to King Harbor, Redondo Beach, California and located a dead sea lion with an apparent bullet hole in the neck on Entrance Buoy #1. The suspect vessel was boarded and the owner/operator furnished a signed acknowledgement of rights statement to the boarding team and a CGI Agent. The vessel was searched and three weapons and over 200 rounds of ammunition were seized as evidence, along with a picture of a dead sea lion taken from a magazine, that hung on the pilot house bulkhead. An autopsy was performed on the sea lion by a medical examiner. Since no bullets had penetrated the buoy it was impossible to check for ballistics. A meeting with a local U.S. Attorney revealed there was insufficient evidence for prosecution. The gunfire vandalism has not occurred since.


Guard District in Seattle, Wash.
Refer to section numbers shown with area designation.
North Cove
North Cow
Marsh
TRIPOD
TRIPODS
Buoy X Position
"15" Fl G 4sec BELL
"13" Fl G 2 Sec BELL
R "12" Fl 4 sec BELL
R "10" Gr Fl 8 BELL
Cable Area
COLREGS DEMARCATION LINE 82 1370 (see note A)
Breakers
Breakers
Breakers
Fl 6sec 24ft 6M
Willapa Bay Chart

Beach Recovery

by CDR R.D. PETERSON

The last issue of the Bulletin described recovery of a 9X38 LWB from the beach on Gardiner's Island by the REDWOOD. Each tender has at some time pulled buoys off the beach, and each one does it differently due to widely varying conditions.

On 14 November 1979, IRIS recovered Willapa Bay Entrance LBB 6 (8X26 LBB) which was driven ashore inside Willapa Bay. Initial reports indicated that the buoy was inaccessible by either truck or ship so an Army helicopter was scheduled to do the pickup. When IRIS arrived on scene, however, the reported position was found sufficiently in error to allow recovery from the water, just barely within reach of the 900 foot towline from the waters edge. Since arrival was within 1 1/2 hours of the ideal recovery conditions, a quick attempt at recovery was made.

The buoy was well sanded in with the complete tube and 1/3 of the body buried. An hours digging (fortunately soft sand), freed the buoy, but still left it in quite a hole.

Easing IRIS onto the beach was an uncomfortable but relatively safe maneuver at low water slack (high water is no time to have yourself aground!). Using constant turns ahead and rudder to balance the remaining cross current, and the port anchor set well off the beach on the way in, IRIS stayed in place very well as the tow line was dragged 850 feet to the buoy.

With the towline rigged over and around the buoy to the lower lifting bail the buoy rolled out of the hole nicely as we heaved around on the windlass. The windlass brought the aid to the waters edge (about 100 feet from the ship). Backing out to deep water completed the recovery in less than 2 1/2 hours.

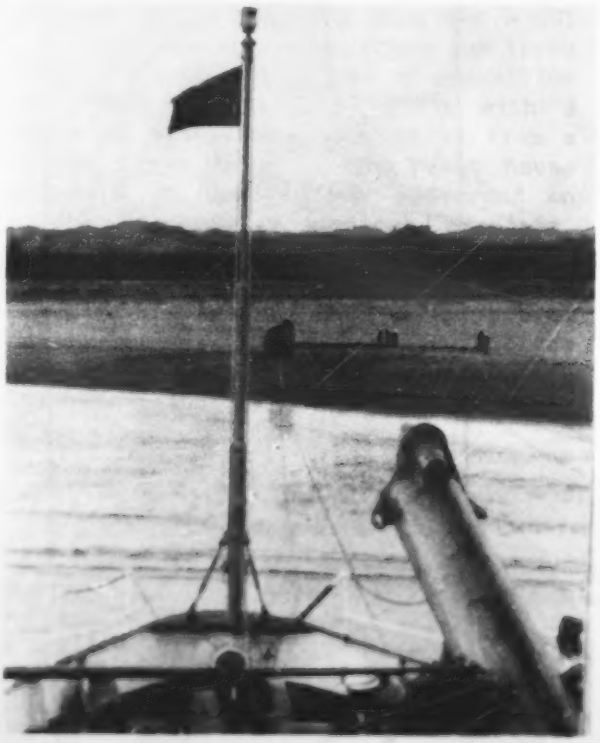
Hints:

1. If beach conditions permit, winching the buoy off is safer than using the ship to pull. Particularly with a single screw ship, battling a cross current and cross wind condition.

2. The big problem in beaching, is the possibility of moving broadside to the beach and grounding full length - it can ruin your whole day! The anchor is the fail safe mechanism. If you broach, the anchor coupled with a rising tide should slip you free.

3. Working the buoy with the "tender" end of the ship clear is the only way to work close to the beach!

4. Overall, tenders can and do, perform just about anything!



Buoy in tow!

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Refloating Beached Buoys

by CDR R.A. LUCK

1. I read with considerable interest your article in the last ATON Bulletin about refloating a beached buoy. Having been faced with a very similar set of circumstances, I arrived at a different solution to the problem. Several years ago I was Commanding Officer of the USCGC CITRUS, homeported at Kodiak, Alaska. During that tour of duty I had several opportunities to "snatch" various items from beaches - a 9 X 38 buoy, a whale, and a beached fishing vessel. In each case, I chose to approach the beach stern first, but under a controlled condition. I had the same concerns as did the CGC REDWOOD about protecting the screw(s); however, I was just as concerned about protecting the keel.

2. It goes without saying you can get your vessel only as close to the beach as depth of water and surf conditions will permit. After that distance has been determined (hopefully while you are still in the planning stage of the operations), the remaining distance must be made up by towing hawser, wire, or combination of both. By determining the length of hawser needed before starting the operation, one can assemble the necessary gear while still inport.

3. Pre-planning any operation always pays off no matter how simple the task. Most plans don't cover every possible situation, but if one can plan for and eliminate most of the common problems, then there are only a few "off the wall" situations to confront you. Predicting the forces of nature is probably the most important. One must know the state of the tide, current, wind, and surf before attempting to predetermine where the anchor should be dropped. Dropping the anchor and backing in dragging the anchor is the controlled situation I mentioned earlier.

4. Dragging an anchor while backing a single screw ship with no bow thruster is not an easy task. But if one has done his homework, the wind and current should be working for you and not against you, and things should go according to plan.

5. As I got close to the desired position, I set the anchor and veered out all but the last two shots of chain. Having all that chain on the bottom gave me confidence that my anchor would hold if weather conditions changed, and I could rely on my ground tackle to pull me back out to better water. Once arriving at the predetermined position (X number of yards offshore in Y number feet of water), I let the second anchor go. Having the second anchor under foot kept CITRUS from yawing, thereby changing her position relative to the beach.

6. With the vessel positioned in the desired location and anchored (actually moored), I didn't have to rely on the screw to maintain position. I could concentrate on paying out the hawser with no concern that I would later find it in my screw or elsewhere.

7. The distance to the beach obviously required our small boat to take the hawser ashore. This part of the operation went quite smoothly since CITRUS was not maneuvering to maintain position and the small boat had only to make a straight run to the beach. I was fortunate in having an extremely long hawser, left over from deploying a NOAA buoy in the Gulf of Alaska, but if this hawser had not been available, I would have bent two or three hawsers or mooring lines together to provide sufficent length to reach the beach. Once the buoy was hooked up, slack was taken out and the hawser made fast to the towing bits.

8. This is the point in the operation where all the advanced planning pays off, and the results are an enjoyment rather than a panic. The anchor under foot is retrieved, and a strain is taken on the remaining anchor. With the stern to the beach method one has absolute control of the situation, and the conning officer can apply power to the screw, taking a

nice easy strain on the hawser. Jumping on the hawser or using the sling shot method may produce some unwanted results. One is sure to find the weak line in the rig by this method, either having to go back and reconnect or having to call for a MEDEVAC and then break out the accident report forms.

9. Actually, with a single screw and no bow thruster, I would consider it extremely hazardous to attempt a bow-to-beach hookup. Once backing down has commenced, the stern would immediately start to walk to port causing the vessel either to get out of position or to broach. If the 180s were outfitted with a stern anchor, the bow-to-beach approach could be accomplished, but since they are not, I suggest one avoids a bow-to-beach confrontation.

10. CITRUS took a steady strain using both screw power and anchor windlass. More power can be applied in the ahead mode, and effective rudder control can be maintained by the screw wash. CITRUS' beached buoy responded as per the predetermined script. When sufficient strain was applied to the hawser and the buoy had shown a respectable resistance to being refloated, it finally gave up and cooperated. However, there is always that split second when things don't seem to be moving and the CO wonders what else he can possibly do to get the buoy to cooperate.

11. Is this a new method? Not really. This method has been used for years by salvage vessels. It is safe and proven. If one is so close to the rocks that damage to the screw(s) is the major concern, then one is too close already, and the price of the buoy he is attempting to save is not worth the risk he is taking.

(ED. NOTE: By the way, CITRUS is alive and well as a WMEC in Coos Bay, OR.)

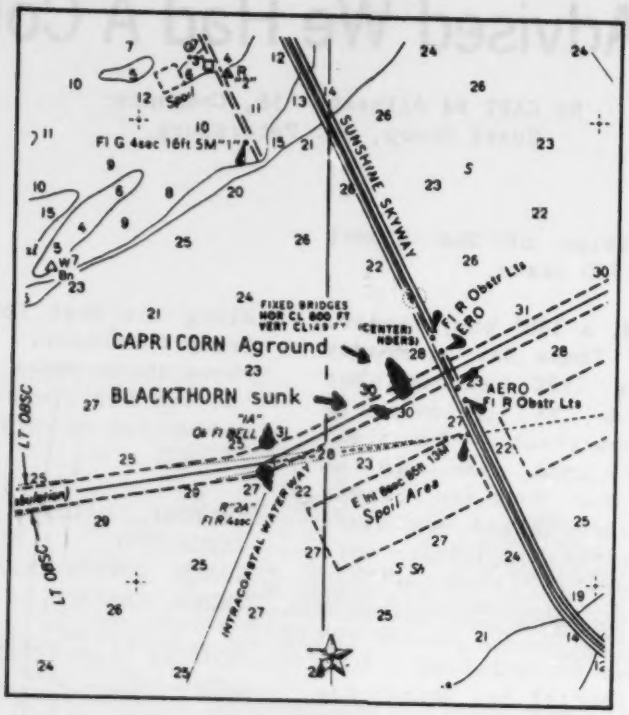
Underway Trailer (?)

Recently two members of a Marine Safety Detachment were returning from a routine harbor patrol with a 17 foot trailerized boat. As usual, they backed the trailer into a parking spot and prepared to unhook. The parking space was level, but beyond the wheel stops the asphalt sloped downward for about 30 ft. to the seawall, with an 8 ft. drop to shallow water and mud.

The trailer wheels were against the wheel stop when the two men unhooked the safety chains and jacked up the trailer tongue. The wheel stops were not secured down, so each time they were hit they slid a little. When the trailer was jacked up to clear the hitch ball, the weight of the boat and trailer started the trailer rolling down the grade, pushing the wheel stops before it. The astonished pair tried to hold the trailer by hand, but to no avail. When the wheel stop reached the seawall it caught, but the trailers' momentum caused it to jump the stop, going through a token guard rail. The boat and trailer came to rest at a 45 degree angle, the trailer tongue on top of the seawall and the boat's stern and motor sunk in 5 feet of mud and water.

They slid the boat off the trailer and refloated it. There was no apparent structural damage; however, the wiring shorted and burned, all equipment was water soaked (damaging the tachometers and PA system) and the boat required a new paint job. Both engines had water damage, shorted wiring and one broken steering bracket. They were delivered to a repair facility. The trailer suffered bent rollers, a broken bow stop, broken tail and side lights and the brakes and bearings of both wheels were packed with mud. The trailer will be surveyed.

Units relying on wheel stops should check and make sure they are anchored to the ground. In unhooking a trailer, remove the safety chains last. Also a set of wheel chocks, which can be made or procured would not be a bad idea. When the trailer is parked, put them in place; it could prevent another embarrassing and expensive incident.



CGC BLACKTHORN

'Be Advised We Had A Collision'

By CAPT Ed Gilbert, '58, Commander
Guard Group, St. Petersburg, F

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The USCGC BLACKTHORN, a 180' buoy tender, was standing out of Tampa Bay on Monday evening, 29 January 1980, enroute her homeport of Galveston, TX, following an extensive shipyard overhaul. The night was clear, visibility good, seas calm, as she passed under the Sunshine Skyway Bridge. The long yard period was over, the ship was homeward bound, spirits were high. Glenn Campbell's "Galveston" had been playing earlier over the ship's entertainment system. The CO was on the bridge along with the XO, OOD, and a full bridge watch. The Special Sea Detail was set.

The channel proceeding out of Tampa Bay passes underneath the Sunshine Skyway Bridge on a heading of 244°. It then swings right to 261° into the Mullet Key channel. The turn is marked on the north by Buoy 1A and on the south by 2A. At this point the channel is about 600 feet wide.

At this same time the 580 foot tanker CAPRICORN carrying 150,000 barrels of Bunker C oil was approaching the bridge area inbound, standing in to Tampa Bay.

Suddenly and inexplicably the peaceful scene was transformed into one of horror and death. Collision!

It had been a peaceful evening at the nearby Operations Center of the Coast Guard Group St. Petersburg, also. Calm weather, no cases working, things on a "slow bell." But at 2023 local time the below radio transmissions galvanized the watch and set in motion a chain of events that would consume the undivided attention of the group command for the next three weeks. St. Petersburg Group is responsible for search and rescue, aids to navigation, and maritime law enforcement along the West Coast of Florida. I am Group Commander. This article reports on those three weeks from the perspective of one who had operational command over the rescue and recovery action.

"MAYDAY, MAYDAY, COAST GUARD GROUP ST. PETERSBURG, GROUP ST. PETERSBURG, COAST GUARD CUTTER BLACKTHORN CUTTER BLACKTHORN, CHANNEL 16 OVER.

"CUTTER BLACKTHORN, COAST GUARD GROUP ST. PETE, OVER.

"THIS IS CUTTER BLACKTHORN, BE ADVISED WE HAD A COLLISION. A COLLISION TO THE SEAWARD SIDE OF THE SKYWAY BRIDGE. APPROXIMATE POSITION ONE ALPHA, MULLET KEY CHANNEL, OVER.

"CUTTER BLACKTHORN, GROUP ST. PETE, ROGER, ROGER. REQUEST TO KNOW IF YOU ARE TAKING ON ANY WATER AND HOW BAD THE DAMAGE IS, OVER.

"THIS IS BLACKTHORN, STANDBY, STANDBY THIS CHANNEL...."

(This was BLACKTHORN's last transmission)

A new voice came in soon thereafter, as follows:

"GROUP ST. PETE, CG41452 UNDERWAY TO ASSIST, OVER.

"ROGER, OUT."

Then another -- excited!

"SECURITY, SECURITY, SECURITY, TANKER CAPRICORN, KIHX, WEST OF THE SKYWAY BRIDGE, JUST HAD A COLLISION WITH ANOTHER VESSEL WHICH APPEARS TO BE SINKING, SECURITY, SECURITY, SECURITY.

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Credit PA1 JONES
CGAS CLEARWATER

Damage to CAPRICORN's port side hawse pipe and loss of anchor

"COAST GUARD GROUP ST. PETERSBURG, BACK TO THE TANKER INVOLVED IN THE COLLISION, PLEASE COME BACK WITH YOUR NAME, OVER.

"THIS IS TANKER CAPRICORN, TANKER CAPRICORN, HOW DO YOU READ?"

New voice from Unidentified Vessel:

"DON'T WORRY ABOUT HOW YOU READ, THIS TUG IS SUNK HERE!

"TANKER CAPRICORN TO THE COAST GUARD CUTTER....

"CAPRICRON, THIS IS COAST GUARD GROUP ST. PETERSBURG, ROGER CAPTAIN, WHAT'S THE SITUATION OUT THERE?

"IT LOOKS LIKE A SUNK VESSEL, DISPATCH ALL VESSELS, ALL BOATS TO WEST OF THE SKYWAY BRIDGE.

"GROUP ST. PETERSBURG, ROGER, WAS THAT VESSEL INVOLVED WITH THE COAST GUARD CUTTER?

"I BELIEVE SO, CAPTAIN, THE BEST I CAN TELL IT WAS.

"AND YOU ARE THE VESSEL THAT WAS INVOLVED IN THE COLLISION?

"THAT'S CORRECT, CAPTAIN.

"HAVE YOU SUSTAINED ANY DAMAGE TO YOUR VESSEL?

"WE MIGHT BE AGROUND, BUT WE ARE NOT SURE NOW, STANDBY.

"ROGER.

"COAST GUARD CUTTER BLACKTHORN, COAST GUARD CUTTER BLACKTHORN, THIS COAST GUARD GROUP ST. PETERSBURG, OVER."

Unidentified Voice.

"THE BLACKTHORN WAS THE ONE THAT PUT OUT THE MAYDAY.

"MAYDAY RELAY, MAYDAY RELAY, MAYDAY RELAY, ALL SHIPPING TAMPA BAY, ALL SHIPPING TAMPA BAY, THIS IS COAST GUARD ST. PETERSBURG, ANY VESSELS TAMPA BAY REQUESTED TO PROCEED AND ASSIST THE SINKING COAST GUARD CUTTER BLACKTHORN POSITION SEAWARD, WEST OF THE SKYWAY BRIDGE...."

*NOTE: The above is a verbatim transcript of the tape of this radio telephone traffic, save only for calls and acknowledgements unnecessary to identification of the units or vessels involved.

In less than two minutes our Operations Center had learned of the Coast Guard's worst peacetime disaster, and started reacting. As the world now knows, a Coast Guard ship with a crew of 50 was sunk and a major port was almost paralyzed for three weeks. I was notified almost immediately at the St. Petersburg Yacht Club where I was attending a social function with my deputy LCDR Vanasse and CWO Held. We arrived at the operations Center a few minutes later. Meanwhile, the following further radio traffic had been transmittred and received:

"THIS THE CHARLES BAYOU, I'M RIGHT HERE AT IT, I'M TRYING TO GET UP BESIDE THE MEN NOW. IT'S JUST ON THE SOUTH SIDE OF THE SKYWAY, RIGHT AT THE FIRST MARKER, I'M TRYING TO GET UP SOME OF THE MEN RIGHT NOW.

"THE BAYOU, COAST GUARD ST. PETERSBURG, ROGER, I WONDER HAS THE VESSEL SANK COMPLETELY?

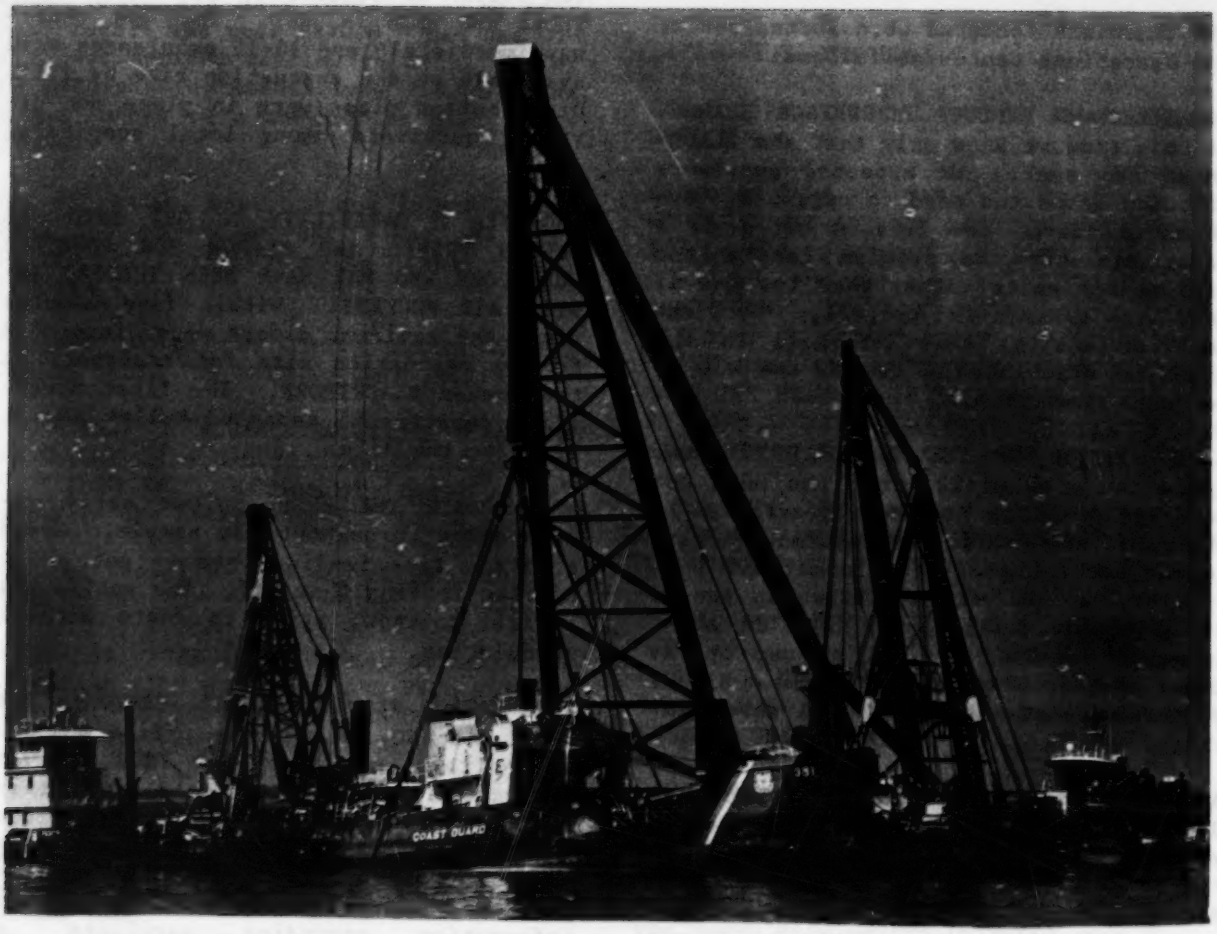
"ROGER, JUST A SMALL PART OF IT STICKING UP.

"COAST GUARD GROUP ST. PETERSBURG, CUTTER VISE, WE ARE UNDERWAY TO THE DISTRESS VESSEL AT THIS TIME.

"CUTTER VISE, WHAT IS YOUR POSITION AND ETA, OVER.

"OUR POSITION IS APPROXIMATELY BOCA CIEGA BAY LIGHT 24.

Credit PA1 JONES
CGAS CLEARWATER



Three heavy cranes hoist the BLACKTHORN from the bottom of Tampa Bay

"ROGER, ADVISE US WHEN YOU HAVE AN ETA, OVER.

"ETA, APPROXIMATELY 45 MINUTES, OVER.

"ROGER, 41452, ST. PETE, WHAT IS YOUR ETA? OVER.

"20 MINUTES, OVER."

The immediate concerns were sorted out at the Operations Center as follows:

ORGANIZE AND EXECUTE A SURFACE SEARCH. At this time we knew only that the BLACKTHORN had sunk. We expected survivors and understood the need to organize a systematic search for them. Often in a major disaster the problem can be too many search units rather than too few if they aren't organized properly. My first decision was to send CWO Held to the scene to organize the search and act as on scene commander.

GAIN CONTROL OF THE INFORMATION FLOW. Again the problem is often too much not too little. LCDR Vanasse was assigned to the radio room to filter information, and impose discipline. As a former RCC Controller, he was very effective in generating search patterns for the on scene commander pending arrival of our operations officer. We also assigned a SITREP writer so that timely SITREPS were generated.

MAN AND ORGANIZE AN EVACUATION CENTER TO CARE FOR SURVIVORS. An early decision was made to operate from Mullet Key near the site of the collision, and our personnel officer was dispatched to set up a center and act as its supervisor. He was given strict instructions to impose discipline and to insure that accurate information was generated regarding survivors as well as any who did not survive. He was warned of the difficulties facing him. The center was manned and ready at 2110 with ambulances standing by. Again at this time we had no solid information on how many survivors there would be or their condition. We assumed there would be numerous injuries on both ships and prepared accordingly. Fortunately there were no injuries on the CAPRICORN and the BLACKTHORN survivor were in remarkably good physical condition. While I had feared numerous serious injuries, all but two survivors were ambulatory.

ORGANIZE THE COUNTY/CITY EMERGENCY REACTION SYSTEM TO RECEIVE SURVIVORS AND TREAT THOSE WHO WERE INJURED. This got underway immediately and 10-15 ambulances were available at the evacuation site by 2115. Distribution plans were in place for dividing survivors among local hospitals.

ORGANIZE A CAPABILITY TO GET INTO THE SUNKEN VESSEL AND SEARCH FOR POSSIBLE SURVIVORS WHO MAY HAVE BEEN TRAPPED INSIDE AIR POCKETS. Within five minutes after the accident divers were dispatched to the evacuation site for transport to the sunken BLACKTHORN. The first divers (fire department) departed Mullet Key at 2130 for the site.

ACCOMMODATE THE PRESS. Our early approach and throughout was simple. Spend a little time feeding them -- not a lot of time fending them off. The public has a right to know. Stick to facts without speculating.

INFORMATION FLOW REGARDING SURVIVORS AND THOSE MISSING. A separate office was set up for this, manned by our YNCS who was instructed to pass out only absolutely verified facts, and only then after making sure the next of kin had already been notified. Despite the obvious pressures involved, no inaccurate information regarding survivors or missing was ever passed.

ACTION TO MINIMIZE POLLUTION AND FIRE. At this time we knew only that the CAPRICORN was a tanker inbound. Therefore we assumed she was loaded with petroleum, and that pollution and fire hazards were present.

The need for the foregoing actions had already been anticipated by the watch at

the Operations Center. Many of them were already underway by the time we arrived. Within minutes after the collision the necessary ingredients for our search efforts and for the care of survivors were in place. Swarms of people started collecting at our Operations Center and they were fed into the rapidly expanding organizations. These included CG and Navy Reservists and regulars from surroundin Coast Guard and Navy commands. No general recall was ever issued. Men and women just arrived wanting to help. Prior to midnight representatives from all the Armed Forces were working as part of my command.

Our 41' patrol boat had now joined CAPRICORN and others at the scene, as reflected by the following tape transcripts:

Unknown Voice --"COAST GUARD CUTTE COMING UNDER THE BRIDGE, COME BACK."

CGC-41452: "ROGER, ROGER, I HAV MY SPOTLIGHT ON A GROUP AHEAD OF ME, I CAN PICK THEM UP." (Cries of "Help! Help!" heard in the background.)

Unknown Vessel -- "ROGER, IS HE JUST ASTERN OF YOU?"

CGC-41452: "HE'S JUST AHEAD OF ME ON MY STARBOARD SIDE RIGHT NOW AND FROM WHAT IM AN SEE, BUT THERE IS A GROUP OF ABOUT IVE OR SIX UNDER MY SPOTLIGHT."

. . . .

GC-41452: "YEAH, YOU GOT YOUR LIGHT HINING RIGHT TOWARDS THEM, CHARLIE, TRY O GET THEM."

nknown Vessel -- "ROGER, CAPTAIN."

APRICORN: "COAST GUARD VESSEL, WE'VE OT A LIFEBOAT IN THE WATER. WE'RE ISPATCHING IT NOW TO THE HULL, COME ACK."

LIFEBOAT CAPT: "CALLING THAT COAST GUARD VESSEL WITH THE BLUE LIGHT. CAPTAIN, IF YOU THINK YOU'VE THE AREA PRETTY WELL SEARCHED, THE FIRST THAT HAVE BAILED, WE'LL DISPATCH OUR LIFEBOAT TO THE HULL."

CGC-41452: "ROGER, CAPTAIN, I'M GOING TO GO UP DEAD AHEAD THERE AND GET THESE PEOPLE IN THE WATER."

LIFEBOAT CAPT: "O.K. WE'LL DISPATCH OUR LIFEBOAT TO THE HULL."

CGC-41452: "ROGER, WHERE IS THE HULL? OVER."

LIFEBOAT CAPT: "IT'S STILL FLOATING, BUT WE CAN'T SEE ANYBODY HANGING ON IT BUT WE STILL HAVE TO SEARCH THE WATER."

CAPRICORN: "CALL ST. PETE COAST GUARD, CAPTAIN, ON LAST REQUEST YOU ASKED ABOUT -- WE HAVE EXTENSIVE DAMAGE TO THE PORT BOW, THE WEBBING IS IN PRETTY BAD SHAPE. SO FAR, THE COLLISION BULKHEAD IS MAINTAINING FLOTATION."

GROUP ST. PETERSBURG: "THIS IS COAST GUARD ST. PETERSBURG, I UNDERSTAND THAT THE PORT BOW ON YOUR VESSEL: OVER."

CAPRICORN: "THAT IS CORRECT, CAPTAIN."

GROUP ST. PETERSBURG: "AND YOU ARE ABLE TO CONTAIN THE FLOODING AS FAR AS THAT VESSEL GOES? OVER."

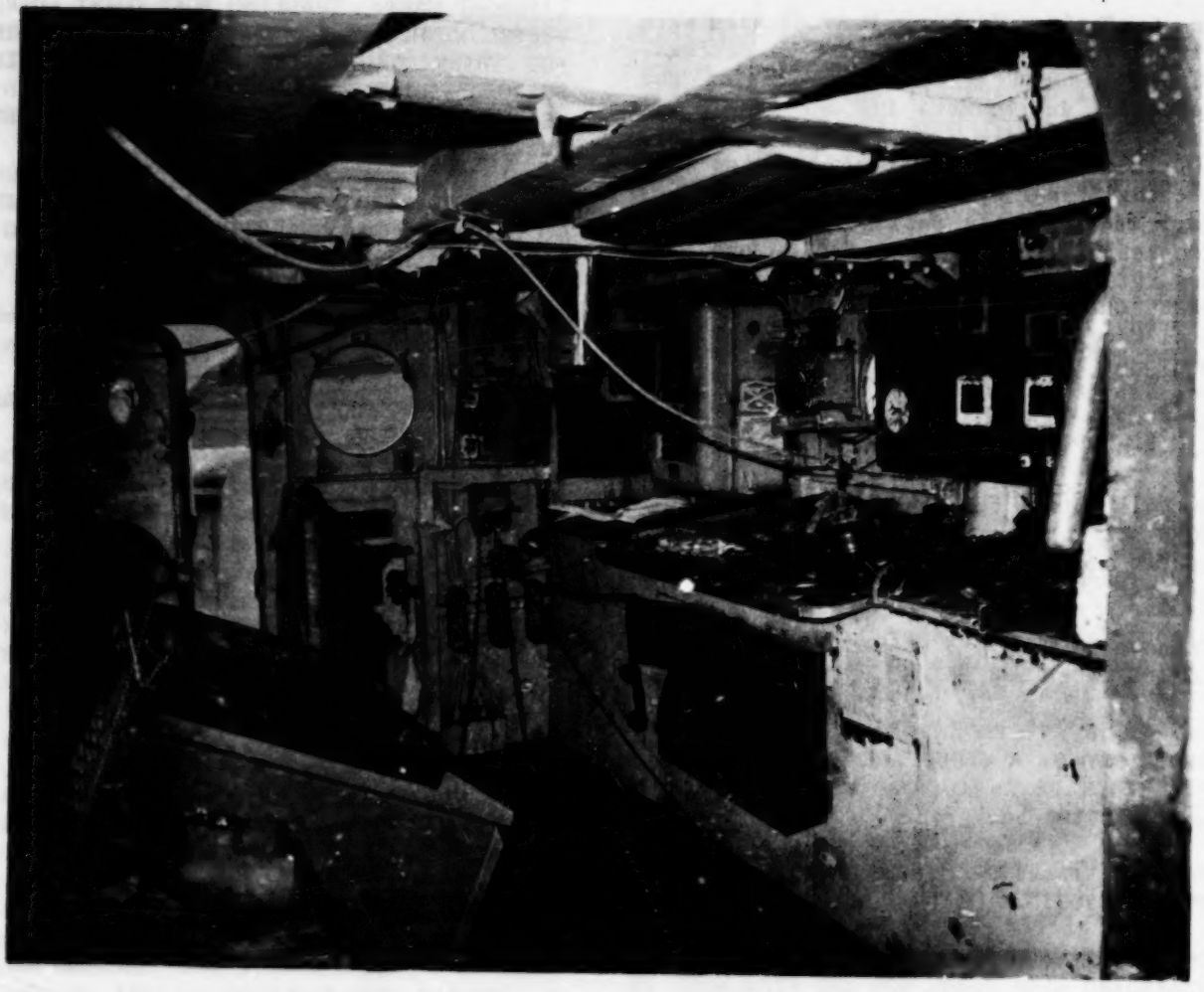
CAPRICORN: "YEAH, WE'RE IN GOOD SHAPE, CAPTAIN. WE ARE AGROUND BUT WE'RE IN GOOD SHAPE."

GROUP ST. PETERSBURG: "ROGER, ARE YOU ON THE SOUTH SIDE OF THE CHANNEL? OVER."

CAPRICORN: "WE ARE ON THE NORTH SIDE OF THE CHANNEL, CAPTAIN, ON THE NORTH SIDE OF THE CHANNEL."

GROUP ST. PETERSBURG: "ROGER, I UNDERSTAND IT'S BETWEEN ONE ALPHA AND THE MAIN SPAN?"

CAPRICORN: "THAT IS CORRECT, CAPTAIN."



BLACKTHORN's pilot house

GROUP ST. PETERSBURG: "CAPTAIN, WHAT IS THE POSITION OF THE SUNKEN VESSEL: DID YOU SAY ONE ALPHA?"

CAPRICORN: "JUST EAST OF ONE ALPHA, BETWEEN ONE ALPHA AND THE SUNSHINE SKYWAY."

GROUP ST. PETERSBURG: "ROGER."

. . . . . .

CGC-41452: "COAST GUARD ST. PETE, 52. PICKING UP SURVIVORS."

After the initial dust had settled a systematic air and sea search was organized. The vessels on scene were quickly joined by the CGC WHITE SUMAC, a 133' buoy tender which was underway from St. Petersburg with her duty section and a makeshift crew of borrowed men 10 minutes after being called, even though she had been on 24 hour standby status. Also the CGC VISE. The search force was soon augmented by many other vessels of the Coast Guard, Coast Guard Auxiliary, Florida Marine Patrol, Eckerd College, Tampa Pilots and others. By the late evening of 29 January the count stood at 7 survivors, 1 known dead, 22 known missing. Hope for additional survivors was rapidly fading, but there was no slacking of the intensity of our search efforts.

Survivors were soon being brought to the evacution center from which they were delivered to local hospitals by waiting ambulances. Navy and Coast Guard petty officers were sent to the hospitals for liaison and to isolate survivors from the press. A Naval Reserve Chaplain, CAPT Orwell, reported aboard early in the evening and started interacting with survivors and families. He gave tireless support to everyone in need for three solid weeks thereafter.

From the beginning, getting divers on scene to search the BLACKTHORN for possible survivors located in air pockets was a high priority. Scuba divers entered the water prior to midnight from the CGC VISE anchored above the wreck. Progress was slow and difficult due to current conditions, darkness, poor visibility, and unfamiliarity with the vessel. Soundings were taken on the BLACKTHORN's hull, but no response was received. Diving operations were continued throughout the night with both scuba and hard hat divers participating. These were interrupted occasionally due to strong currents and poor visibility. The stern of the CAPRICORN was near the sunken BLACKTHORN and during the night it started to swing toward the wreck and the CGC VISE anchored above. Tugs were required to keep it away. These added to the confusion and further disturbed the water, making visibility for diving purposes almost zero.

In the early daylight hours of 29 January five more bodies were recovered from the decks of the BLACKTHORN. Our count now stood at 27 survivors, 6 known dead and seventeen missing. By mid morning, dozens of small boats had completed searches of their assigned areas. Aircraft, boats and shore parties had combed the surrounding shore line and extensive air searches had been completed -- all with negative results.

Soundings revealed BLACKTHORN was sunk with her bow 15 feet north of the channel's center, her stern about 150 feet south of center channel. The CAPRICORN was still aground on the north side of the channel. Passage anywhere near the channel was impossible due to the CAPRICORN and the BLACKTHORN plus our search and diving efforts.

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I summarized my problems in the late afternoon Tuesday as follows:

GAIN EFFECTIVE ACCESS TO THE INTERIOR OF THE BLACKTHORN. Local scuba and hard hat divers had achieved some success even though their work was made difficult by the factors already discussed. A few hours after the collision, the Coast Guard had formally tasked CNO to provide diving and salvage support. Our strike team divers were ordered in and they plus representatives from U. S. Navy Harbor Clearance Unit #2 started arriving by midday on Tuesday. Both forces were diving on scene by early Tuesday afternoon. We still had hopes that some survivors were alive inside the hull. These hopes were growing faint, however.

PROVIDE COMFORT TO THOSE FAMILIES WHO HAD LOST LOVED ONES OR WHO HAD THEM MISSING. CAPT Harwell, USNR was already on board. The USN SPRINT Team (Special Psychiatric Rapid Intervention Team) had been ordered in and they, local Red Cross and other organizations were providing invaluable assistance. This aspect of the problem was especially difficult. Our command had more than it could handle with our operational problems. Early interactions with survivors and families of those missing and lost were very difficult for me and members of my command. Although their needs were overwhelming, there really was little we could do for them except obtain expert outside assistance, which was already on hand. Therefore, I decided to isolate those of us working the operational problem from those with special grief to the maximum extent possible. We already had more than we could handle and in our exhausted tense state I simply felt we were poorly equipped for the additional job. Although there is no good solution to this problem, I would strongly recommend our approach to those faced with this kind of situation in the future. The situation was eased immeasurably by the early arrival of the forces already the forces already mentioned, plus representatives from the BLACKTHORN's home district. CGAS Clearwater provided expert, decedent affairs support throughout.

PERSIST IN THE SEARCH. Despite a massive sea and air search no additional survivors had been located. Still we had not given up hope. However, we were approaching or perhaps even had passed the point where the probability of losing additional lives in the search effort exeeded that of finding additional survivors.

MAINTAIN A POSITIVE PUBLIC IMAGE. Successful accomplishment of our missions requires an unusual amount of public support and confidence. From the beginning it was recognized that this collision and its aftermath would be a downer for the Coast Guard's image, particularly in the aftermath of the CUYAHOGA sinking. With the Marine Investigating Board convening and attacks on its ability to be impartial already starting, it was not possible for us to be unusually partisan toward the BLACKTHORN's defense. The CAPRICORN people started immediately to blame the BLACKTHORN for the collision and although their postulated senario was ridiculous it did achieve some believeability in the press. We tried to be upbeat about the background and training of BLACKTHORN crewmen and to point out positive things on the Coast Guard's behalf without going overboard.

REOPEN THE CHANNEL. Tuesday morning prior to the CAPRICORN's refloating, we started a sounding program to determine alternate channel possibilities and to precisely fix the location of the sunken BLACKTHORN. On Wednesday these were completed and a series of meetings and consultations with port officials, shipping companies, Pilots Associations, etc. were held in conjunction with COTP Tampa to map out alternate port operations plans. On Thursday two altenate channels were marked. One had a controlling depth of 28 feet, and was far

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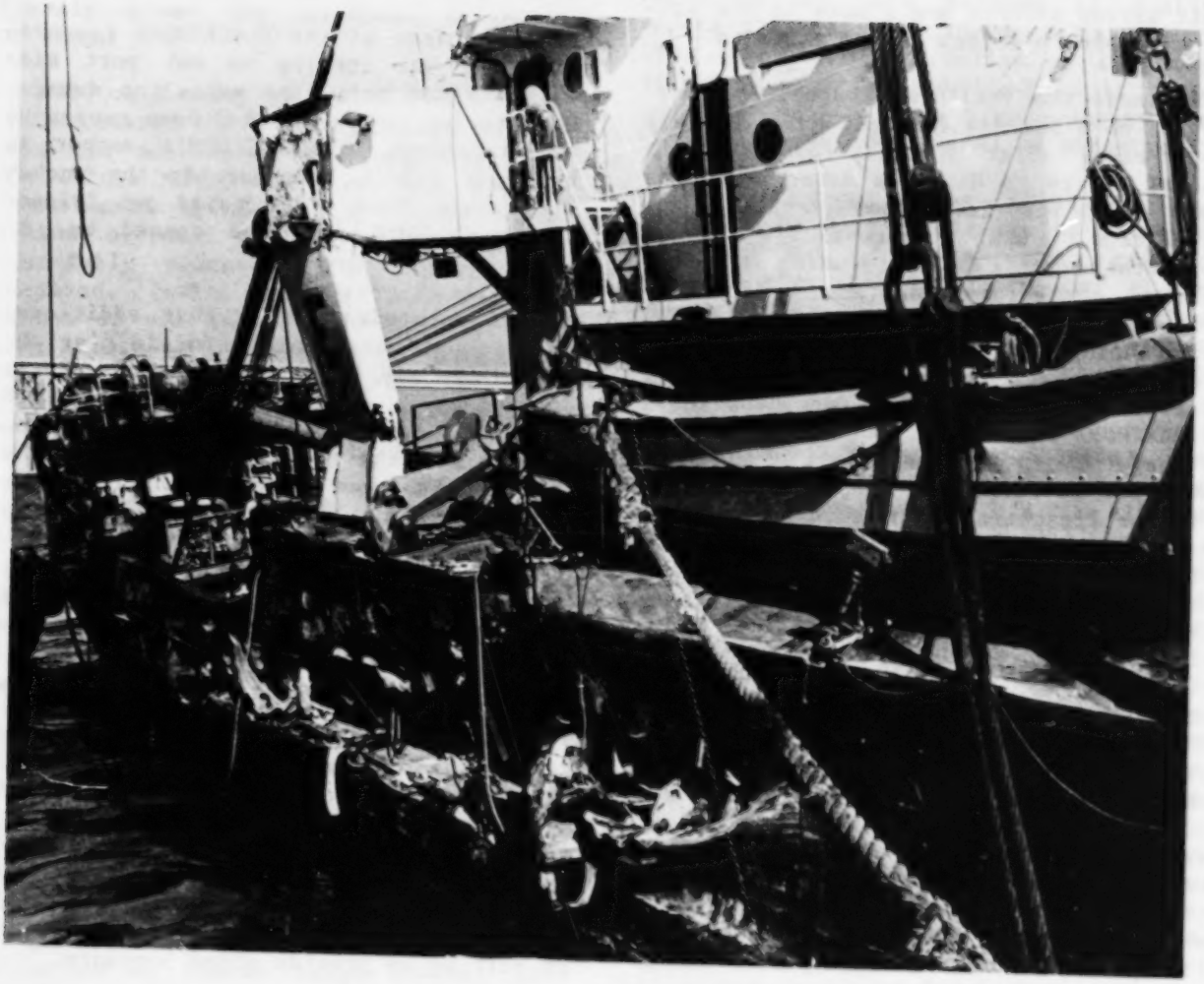

Damage to BLACKTHORN's port side due to CAPRICORN's anchor

enough away from the BLACKTHORN to allow safe passage while divers were working on the sunken wreck. Another channel with a controlling depth of 34 feet, width 180 feet, was marked near the BLACKTHORN position. Its use required interruption of all diving efforts and a move of the diving support platform during transits.

We placed the shallower channel in operation on a one-way daylight-passage basis on Friday after formally publishing a Local Notice to Mariners under authority of the District Commander. Its operation was successful beyond expectations. By instituting a mini-harbor control system and controlling passages from the bridge of the CG/Navy ship using Channel 13 we were able to reduce passage interval to 15 minutes. Operation of this channel continued until BLACKTHORN was raised, and there were no mishaps. With the deep draft channel we were not so fortunate. We were ready to try our first transit of this by Saturday morning and had moved our diving support ship off the wreck for safety purposes. We had stipulated that the first ship through be carrying non petroleum cargo to minimize pollution dangers should there be an accident. All was in readiness and hopes were high. Unfortunately the ship grounded just prior to reaching our special channel. I remain convinced that the plan was completely viable — just poorly executed. Watching that first ship trying to make its approach and realizing that it was improperly aligned and wouldn't make it was perhaps the personal low point for me of the entire three weeks. The ship ran aground in a position which blocked the channel entrance. She was refloated on Sunday. Thereafter a number of vessels with drafts of 33 feet transited without difficulty. However, some of the larger fully loaded vessels opted to remain in port until the channel was fully cleared.

As the search effort wound down our attention became concentrated upon balancing the conflicting requirements of raising BLACKTHORN on the one hand and permitting access to the port on the other. U.S. Navy Harbor Control Unit #2, under the dynamic leadership of LCDR Strephen Delaplane, formulated and ultimately executed a lifting plan for BLACKTHORN that proceeded flawlessly.

Early surveys of the BLACKTHORN revealed that she was resting on her port side with limited below the waterline damage. Her sinking apparently had been caused by the imbedment of CAPRICORN's anchor in her port side. Subsequently the anchor and anchor chain which payed out flipped the BLACKTHORN over and caused her to sink.

It was determined early that additional assets would be required for lifting the BLACKTHORN and for supporting the salvage operations. Consequently the USS PRESERVER (ARS-8) was ordered in from Norfolk and the 650 ton crane barge the CAPPY BISSO was brought in from New Orleans. The PRESERVER, commanded by LCDR Doug Myer, acted as On Scene Commander, coordinating the salvage operation and all the supporting forces that were necessary to do it. They did an outstanding job throughout.

In addition to the 650 ton CAPPY BISSO two smaller barges with cranes were used to provide a total lifting capability of nearly 1,000 tons. The BLACKTHORN displaced 1,080 tons. However, about 200 tons of this was water and fuel so that her lifting weight was actually less than 900 tons. For an additional margin some of the water tanks were pumped just prior to lifting to provide added buoyancy.

By 10 February rigging had been finished for parbuckling the BLACKTHORN into an upright position. Operations were then halted to allow divers representing the CAPRICORN to examine BLACKTHORN in her "as sunk" condition. This was at the request of the marine Investigating Board. As Operational Commander I opposed this delay. I felt speedy restoration of port traffic more important than further investigation of BLACKTHORN's submerged condition.

Naturally there were other considerations which were taken into account by higher authority, who ruled that the delay would be granted. They later granted two additional days delay to allow CAPRICORN divers to complete their work. These two days resulted in an additional two days delay because of bad weather when we were finally given the go-ahead to start lifting.

At 0910 on Tuesday 19 February the BLACKTHORN cleared the bottom of Tampa Bay and pump out operations were started. She was lifted enough to clear the edge of the channel by 1015. By 1300 500,000 gallons of water had been removed and she was fully afloat. The channel was reopened. Inside the BLACKTHORN were the bodies of all those still missing -- a grim reminder of our worst peacetime disaster. Of her crew of 50 - 27 survived and we recovered 23 bodies.

EPILOGUE

Those reading this who expect me to conclude with the traditional list of "lessons learned" and "guidelines for the future" will be disappointed. I am no longer young enough to know everything. Nor do I have the stomach to predicate such an exercise on the Coast Guard's worst disaster. I do, however have some thoughts I'd like to share:

--The national defense implications of the ease of closing a port with sunken vessels are obvious. Had the BLACKTHORN sunk in a more athwart channel mode, the port of Tampa would have been completely closed for up to three weeks. Mobilizing resources to remove large channel obstructions takes time even under the best circumstances.

While there have been a number of successful rescues from the compartments of sunken vessels, we were not to be so lucky. How long -- or if -- men survived inside the BLACKTHORN will never be known. Given the circumstances, rescue of survivors inside probably never was a possibility, although this was not from a lack of effort. A better understanding of this aspect of SAR is needed along with additional capabilities.

--Care and comfort of survivors and families of those lost requires unusually large and well trained resources. The magnitude of this problem is easily underestimated, and there is a strong need for continuing follow up and long term support. The mobilization of these resources should be a high priority for those managing these kinds of disasters.

--The decision making mechanism for selection of what cargos are to be moved into and out of ports during reduced operations are not in place. Our ad hoc system worked well once implemented, but it needed a strong impetus and almost dictatorial leadership from us to get started.

--Common people and organizations are capable of uncommon performance in a crisis of this kind. This is already well known and comes as no surprise. However, a willingness by individuals to exert unusual efforts will be wasted unless adequate training and experience bases already exist. We assume that motivation is sufficient, but this is founded on our having seen good results from motivated behavior working with experience and training. We are losing the experience, which makes the training aspect even more important.

--The Coast Guard is required by law to convene boards of investigations for major marine accidents. During the recent past there have been two collisions involving Coast Guard vessels and in both cases attacks on our ability to be impartial investigators of ourselves were intense. If we are so unfortunate to face this again, we can expect more of the same. Hopefully, somewhere there is a good answer to this dilemma.

The operational commanders in a situation such as this has infinite resources at his disposal. He need only ask. He

receives tremendous support from all quarters -- both civilian, military, and community. However, in the last analysis it is the operational commander alone who must make the decisions and he must have the resolve to do this in the best way he thinks. We made a number of decisions in this case that were intensely unpopular at the time, most of which fortunately turned out to be correct in retrospect. Survivors were isolated from the press, much to the chagrin of the press. We did make a survivor spokesman available for one interview, but others were never made available to the press. We insisted that tugs be standing by the wreck site as a safety factor during the time vessels were using the alternate channels. This was highly unpopular and some of the pilots thought it was a reflection on their professionalism. The tugs more than proved their worth when the JONNA DAN lost control and was being set into the bridge later in the operation. Without the tugs there could have been serious damage and possibly destruction to the bridge. We were sometimes accused of being "heavy handed." The operational commander must balance legitimate complaints of this type against the urgency of the situation and the need to get the job done. You can't please everyone; and there are times when you simply can't afford the time to worry about it.

I am prejudiced, of course. But I can't help add I take great pride in what I consider the outstanding performances of the men and women of my command and those of other Coast Guard, Navy and governmental organizations who combined in this rescue and recovery action. Also in the performance of our civilin component, the Coast Guard Auxiliary, which gave magnificent support. The operations over these three weeks were a string of outstanding successes. The people involved were a credit to themselves, their commands, their organizations, their generation.

One last thought. I think our capacity for self-criticism is over-developed. At the time I am writing this the Marine Investigating Board is still investigating the cause of the accident. I still don't know what caused it. I do know that it is seldom that either vessel in a collision is completely without at least some technical fault. I strongly believe, however, that any fault that may be attributed to the BLACKTHORN in this case should not be construed as a blanket indictment of our system of training or our professionalism. Unfortunately we often have a tendency to do just this. If the BLACKTHORN were partially at fault, it will mean at most that a few individuals made mistakes. This does not mean that our system is automatically at fault. Men and women in the Coast Guard continue to perform with outstanding professionalism under some very adverse circumstances. Whether our levels of training, experience and material readiness are acceptable or not can, perhaps, be debated. However, it is worth remembering that administrations and Congress ultimately determine how well we can do our job when they decide what resources are to be made available. They determine what kinds of people we can attract and keep with the compensations made available to us. Our job is to fight for the resources we need; then insure that we take full advantage of what is available.

Meanwhile let's not lose faith in ourselves. Perhaps we should weigh any inadvertent mistakes which caused this great tragedy against the tremendous recovery action it generated. As to spirit, perhaps we should reflect on the following incident which only recently came to my attention:

"During the early morning hours after the sinking, a number of BLACKTHORN crewmen were released from local hospitals and brought to Station St. Petersburg EM Club which had been converted into a makeshift sick bay with Red Cross equipment, cots, donated clothing, etc. A Navy volunteer, LCDR Jones, was in charge of the Center. After discussions with the Chaplain and examinations by medical personnel, the crew members were encouraged to sleep and relax with card playing, pool, etc. While this was in progress word was received that BLACKTHORN's Commanding Officer was enroute. All activity ceased, sleeping crewmen were awakened and an impromptu field day started. LCDR Jones tried to get the men to again relax, assuring them that their CO was not coming for an inspection. The spokesman replied, 'Sir, you don't understand, our Old Man is coming. We want this place to be squared away.' Field Day continued."

(Positioning cont.)

tion is right. Object position discrepancies found by units should be brought to the district's attention.

If everything looks good but the diagram position and charted position of the buoy still don't agree, set the buoy where it best does the job in the real world, take as many measurements as possible using the objects that are listed on the district printout, and note on the Positioning Record the problems experienced setting the buoy. In this case, the district office should be notified of the discrepancy by rapid communication so that notification to the mariner can be made by BNM and LNM.

Marking Downed Pile Structures

by Mr. Stan Walker (G-EOE)

The concept of using some floating device to mark a structure that has been knocked down is theoretically good. However, it is not a new idea. This idea has been suggested using unlighted marker buoys, diving balls with a CO2 mechanism, or a two-stage A/N structure with a floating second stage which automatically deploys when the structure is knocked down. Refinement of this concept has proven that the most efficient and cost effective method for marking a fallen structure or sunken buoy is an inexpensive unlighted marker (bleach bottle, fish net cork, etc.). To utilize such a device, it is necessary to keept the individual unit price at a minimum. Only an inexpensive marker would be economically practical when placed on a large number of structure. As the marker buoy becomes more complex, there is a higher risk of it not surviving a collision which is sufficient to destroy the structure. Commandant (G-EOE) has no objection to the attachment of colored styrafoam floats (or similar devices) to assist in location downed structures.

New Lives for Old Buoy Tenders

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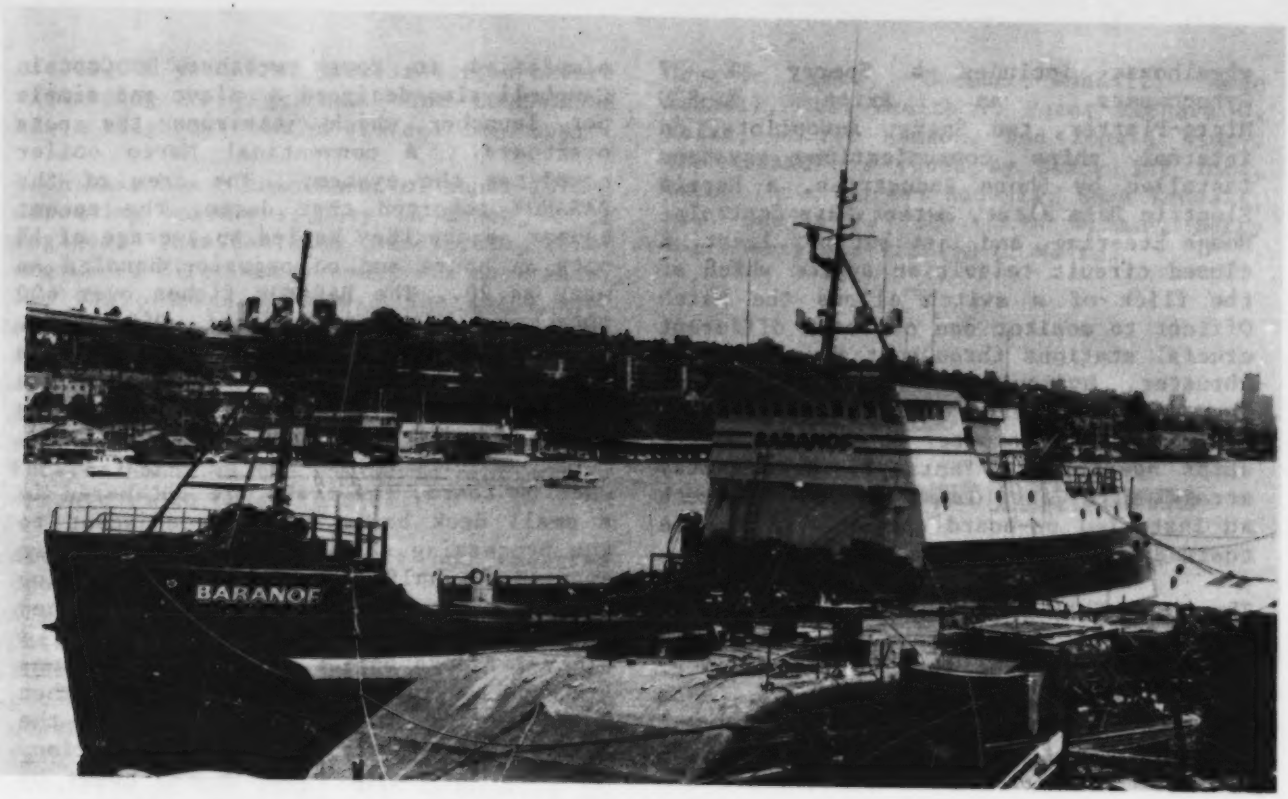
The latest step in the evolution of Alaskan crab fishing vessels is the emergence of the catcher-processor. Two recent additions to this growing number of vessels are converted government vessels that will spend the summer processing salmon in Bristol Bay. Both the BARANOF and COURAGEOUS are crab catcher-processors that are finding employment outside the crab fishery during slack periods. In addition to tanner and king crab, the converted Coast Guard buoy tenders hope to fish and process black cod as well as process salmon.

The 170 [sic] foot vessels have a beam of 37 feet and were constructed at the height of WWII. They were commissioned as the TUPELO and BALSAM and spent the twilight years of their career as buoy tenders servicing navigation aids along the West Coast. After decommissioning, the vessels were sold by the General Services Administration for $53,087 a piece and subsequently sold to their present owners for $10,000 and "other valuable considerations" according to Coast Guard documents. Each of the vessels were stripped to the bare hull and rebuilt from

Loaded with crab pots

pages tightly bound



the main deck up. The process took approximately eleven months, three months for the breakdown and eight months for the conversion. Bart Campbell, major owner and captain of the BARANOF, estimates the replacemnt costs at over five million dollars.

The two vessels were converted at the yard of Sea-Land Associates on the north shore of Lake Union. Shipfitters who worked on both vessels say that the conversions are similar with a few exceptions. During a drydock period bow thrusters were installed and the shaft, rudder, and screw were reconditioned. The engineering plant on both ships was replaced. In addition to the Caterpillar 3406 TAT bow thruster unit, two Caterpillar 353 TAT diesel auxiliaries, each capable of generating 300 KW were installed. The BARANOF selected a Caterpillar 16.cylinder 399 TAT Diesel rated at 1200 HP at 1175 RPM. Bill Osborne, Captain of COURAGEOUS, opted for an eight cylinder Alco Diesel to power his single screw. Fresh water is provided by a Maxim Evaporator which can distill sea water at a rate of 60 gallons a minute. Both ships can store up to 25,00 gallons of fresh water. The BARANOF has a fuel storage capacity of 85,000 gallons, which under optimum conditions could last the ship up to four months. The COURAGEOUS has slightly less capacity at 70,000 gallons.

Both ships provide ample evidence of the rapid proliferatin of electronics in the fishing industry. The BARANOF has two Loran C receivers, each with remote digital readouts, a Micro Marine 7100 and a Northstar 6000, two Krupp-Atlas 43000 Radars with a range of 48 nautical miles, a Mark I Radar watch to alert the Watch Officer to any contacts on his radar repeaters, a Krupp-Atlas 600S Echograph Fish Finder, two depth sounders, a Ratheon De-726B and an Impulse 600. BARANOF has a full line of communications gear that includes a Hull Single Sideband 200 Watt Transceiver, a Furuno facsimile receiver for the latest satellite weather data, and a Sailor VHF and assorted CB radios. Other installed equipment in the BARANOF's

wheelhouse includes a Sperry MK 37 Gyrocompass, an Axion EX-820 Micro-Plotter, two Sperry Autopilots, an internal ships communications systems installed by Shore Industries, a Harris Electric Helm Alert, Mather Ship Controls, Hough Steering, and last but not least, a closed circuit television system which at the flick of a switch allows the Watch Officer to monitor one of three different crucial stations throughout the ship: the thruster, hydraulics and refrigeration. The logical next step to all this equipment is a computer to run the entire ships operation. Fantasy? Not exactly according to Capt. Campbell, who says such an installed on-board computer is in the testing stages right now.

The COURAGEOUS is also amply equipped, with some electronics and communication gear different from that on the BARANOF. Captain Bill Osborne chose two Ross Fineline Depth Recorders, Furuno Model KRA 116 Radar systems, a Stephens Model 106 synthesized single sideband, Northern 820 12-channel single sideband, Modar Model 5575 synthesized VHF, Motorola Nautilus Model 440 VHF, a Taiyo VHF automatic directin finder, a Yaesu FRG 7000 communications receiver, and an Aiphone Intercom System.

Thirty-year old Bart Campbell has been the captain of "six or eight crab boats among others." After high school he left Santa Cruz, California headed up to Alaska and became a deck hand aboard a crab boat. By the age of 23 he was captain of the 91 foot crabber TEEJIN II. As a result of his extensive experience on board crabbers, Bart has developed a new pot hauler which simplifies as well as increases the safety of handling his 8' X 8' pots. His knuckled booms can "hold a pot better" and can lift the pot up out of the water and over to an aluminum work table in one motion. The system reduces "swing" because it uses only 5 feet of cable as opposed to the 20 or 30 feet used by most conventional systems.

First Mate Peter Kinchla feels the pot hauler is safer for the above reasons and also because handling the pots is greatly simplified in rough weather. Captain Campbell also designed a unique and simple pot launcher which jettisons the pots overboard. A conventinal Marco coiler completes the system. The crew of the BARANOF reported that during the recent tanner season they hauled an average of 15 pots an hours and on occasion handled as many as 20. The BARANOF fishes over 600 pots and can deck load 233 pots. Conventional cargo handling is done with a Rowe Crane. The COURAGEOUS uses a conventional pot hauling system and a Canadian built Jacob Brothers Crane.

Once on board, the crabs are butchered in a small deck house which is adjacent to the processing room. Here the crabs are snapped in half and gilled before being moved to the processing room where they are placed into coookers heated by a Cleaver Brooks boiler. The crab sections are cooked for 20-26 minutes and then cooled prior to freezing. Both the cookers and coolers use a brine solution. Freezing is accomplished in 4-6 hours by blast freezers with two high-stage compressors. These maintain a temperature of -30 degrees F. The BARANOF claims to be able to process 30,000 pounds of crab a day.

Salmon, which will be bought from Bristol Bay gillnetters, will go through a simpler process as most will be frozen in the round before being glazed, placed in plastic bags, and boxed. The BARANOF plans to do some experimenting with black cod fishery. No plans have been finalized as to the method of processing to be used, but tentative plans are to freeze the black cod whole.

The major difference in the ship's processing systems is that the COURAGEOUS is equipped wiht a seawater holding tank unlike the BARANOF. This tank is used for holding salmon and crab prior to processing by the crew. Another difference is in the size of the box used to package the frozen crab. The BARANOF uses a 25 pound box while the COURAGEOUS uses a 20 pound size. The BARANOF can stow 400,000 pounds of processed crab

or 300,000 pounds of processed fish before offloading is required. The COURAGEOUS has a slightly reduced storage capacity.

Each ship has a complement of about 25 men depending on the fishery in which it is engaged. This includes the captain, chief engineer, first mate, cook, six deckhands, and the processing crew. The ships have accomodations for 30 personnel in various stateroom combinations. The cafeteria style galley was equipped by a professional restaurant outfitter and can seat the entire crew at one sitting. Entertainment in the galley is provided by a Sanyo Video cassette deck.

Although the COURAGEOUS is now embarked upon her maiden voyage, the BARANOF started fishing for blue king crab last October and worked tanner crab this spring. She has also explored the potential of a black cod fishery. The advantages to processing crab and other fish at sea are obvious. There is a major reduction in the time spent transiting to and from shore based facilities to offload. Processing by a ship also means increased revenues for the ship's owners as the shore based processor is eliminated. Other advantages are not so obvious. After the product is delivered to Seattle and stored at facilities provided by Universal Seafoods, it is ready to be sold by brokers or to be shipped to storage facilities on the East Coast. This is possible because for the most part these catcher-processors produce a finished produce, which means no repacking once the boxes are delivered to Seattle. Also the use of a fresh water glaze adds appeal to the attractively packaged finished product. John Chappell, business manager for the BARANOF venture, says that Seafood Brokers have requested his product because of its high quality. Part of the reason for his products's high quality stems from the small size of the processing crew, a factor which he feels instills pride in the process workers as they prepare the product.

Both catch-processors are owned by "Limited Partnerships." The COURAGEOUS is owned by Raymar Inc., Excom Inc., Gilman Oceanic Inc., Norman Randall, Gene Randall, Mrs. Judith V. Pace, Richard C. White, Philip Hanson, and Ronald Bundy. The BARANOF is owned by Black Ink Inc., Excon Inc., Norman Randall, Gene Randall, Mrs. Judith V. Pace, B.E. Gilman, Harry Nierenberg and Richard C. White.

(Frederic cont.)

Base Mobile

Base Mobile was coming off the ropes by afternoon of 13 September. All homeported tenders had been supplied with on-hand material and deployed. Small boats had returned from hurricane moorings and were available for operations. Of course, the aforementioned logistics efforts, along with a massive clean-up, was in full swing. A variety of portable generators was brought to the base, and were the source of power for full restoration of operation for nearly two weeks until commercial power was restored.

On 22 and 23 September, CG Reservists from New Orleans were "imported" by bus to lend a hand in the Base clean-up and to give the weary permanent party of the Base a badly needed weekend off. On 1 October Base Mobile had finally been sufficiently repaired and restored to permit resumption of normal working hours and routine.

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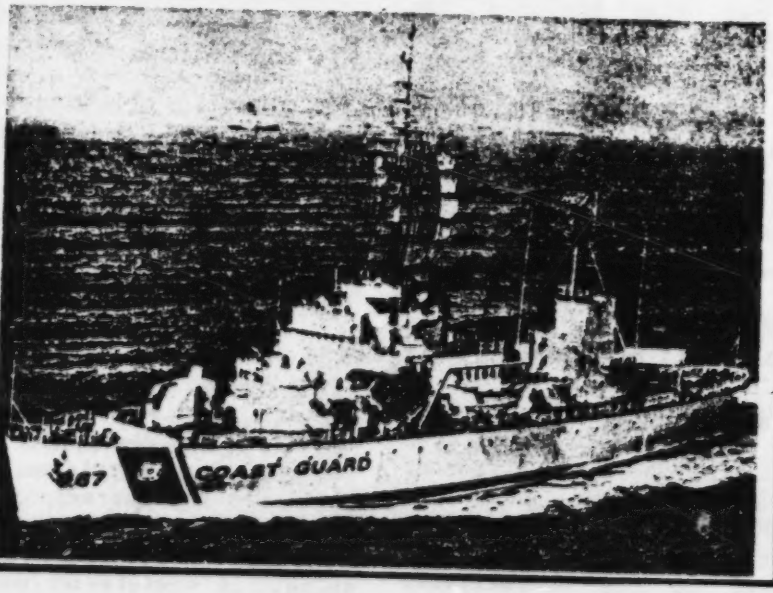

ANY TAKERS?!

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